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THE UNIVERSITY OF ALBERTA

AN HISTORICAL GEOGRAPHY OF SETTLEMENT IN THE NORTH SASKATCHEWAN RIVER VALLEY, EDMONTON

BY

© ELAINE BEDFORD

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

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EDMONTON, ALBERTA

FALL 1976

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "An Historical Geography of Settlement in the North Saskatchewan River Valley, Edmonton" submitted by Elaine Bedford in partial fulfilment of the requirements for the degree of Master of Arts.

William C. Wonders
.....
Supervisor

.....

.....
External Examiner

Date. August 30, 1976.....

Abstract

The North Saskatchewan River Valley through Edmonton is a valuable recreational resource. City council decisions regarding preservation of the valley's recreational potential date back to 1914. Subsequent municipal and provincial government actions have ensured for the residents of Edmonton a river valley parks system.

The evolution of land use in the river valley from the early days of settlement to the present shows a progressive orientation towards recreational uses at the expense of industrial and residential uses. While largely politically determined, this change in settlement morphology was controlled by other factors such as natural, economic, social and technological factors.

Examination of these five factors provides an explanation in some detail for the 'emptying out' process occurring in the river valley. This process can be traced back to the establishment of Forts Edmonton and Augustus in the study area during the early nineteenth century. Subsequent river valley development was slowed by a disastrous flood in 1915 and the economic effects of World War One. The following decades saw the demise of industrial activity and an increase in recreational and residential land uses. The residential use of the river valley is now being challenged by the recreational pressure presented by the Capital City Recreation Park Project.

The future of the North Saskatchewan River Valley now appears to be that of a scenic, inner-city park system with a minimum of residential activity. This planned future, however, is not without

conflict on the public and private scale. The ultimate future of the river valley will thus be a product of the outcome of this debate.

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Chapter I

Introduction

The Northern Saskatchewan River Valley and its tributary ravines are a striking feature of Edmonton's townscape. The great river meanders in a north-easterly direction through Edmonton bisecting the city into, roughly, two equal halves. In width, the valley varies from 0.5 to 1 mi (0.8 to 1.6 km), and in depth from 100 to 200 ft (30.48 to 60.95 m). Fifteen ravines contribute to the topography of the river valley. Whitemud Ravine is the largest, originating in the south beyond the city limits. The total area of the river valley and ravines has been calculated as 7,272.01 ac (2942.98 ha) of which 4321.30 ac (1748.71 ha) are flat to rolling, 2,354.48 ac (952.66 ha) are of medium slopes and 596.23 ac (241.20 ha) are of steep to near vertical slopes (City of Edmonton: 1972, p. 62).

The river itself flows swiftly (at approximately 5 to 9 mi/h/ 2.23 to 4.02 m/s) through the main valley. Its name, in fact, originates from the Cree 'Kissaskatchewan' which means 'swiftly flowing waters.' The average width of the river is 0.2 mi (0.3 km).

Wonders (1959a) has described the natural vegetation of the upper surface of the valley as being typically parkland but noted the difference between the vegetation of the north and south facing slopes (Wonders: 1959a, p. 10). The City of Edmonton, Parks and Recreation Master Plan, 1970-1980 reports the north facing slopes to consist of "spruce with intermixtures of aspen, birch and dogwood"

and the south facing slopes to consist of prairie vegetation such as "roses, saskatoons, grasses and other herbaceous plants" (City of Edmonton: 1972, p. 62).

The North Saskatchewan River Valley has had a marked influence on the urban development of Edmonton. Acting as a barrier to north-south movement, it is not surprising that the early fur trading companies should have selected the north side of the river as a defensive site for protection against the more war-like Indians from the south. Such a barrier can, however, have adverse effects under other conditions. The Calgary and Edmonton Railway reached the south side of the river in 1891, but was not extended to the north side until the Low Level Bridge was completed in the spring of 1900. This barrier to the railway enabled the rival community of Strathcona to become established, grow and prosper to the annoyance of the residents of Edmonton. In a similar vein, Wonders (1959a) reports that "the decisive factor in effecting amalgamation of the two cities in 1912 was the construction of the High Level Bridge and the extension of the C.P.R. across into Edmonton" (Wonders: 1959a, p. 11).

Even today the influence of the river valley as a barrier is strongly felt. Edmonton's grid pattern of streets must terminate abruptly at the valley edge or curve along and down the valley slopes. Seven bridges cross the river, but even so, traffic congestion is a problem at times of peak flow.

This brief discussion of the North Saskatchewan River Valley and its influence on the urban development of Edmonton leaves one to question 'What of the river valley, itself?' The historical uses of the valley have been briefly documented throughout the works cited

in the literature review. Table I indicates the parkland acreages in the river valley, ravines and adjacent areas. From the figures presented and from observation of the river valley, one immediately notices the large amounts of open space either developed or undeveloped. The only major built-up areas to disrupt the contrast between the open spaces of the valley and the surrounding urbanized area of Edmonton are to be found on the river flats known as Rossdale, Riverdale, Cloverdale and Lavigne (Fig. 1).

Concern about such valuable open space in the urban landscape of Edmonton has a history dating back to 1907 when the Todd Report made recommendations for a river valley park system. The proposal was adopted by the city in 1915. Subsequent policies dealing with zoning and interim developments in the river valley and ravines are outlined in the City of Edmonton's current River Valley Study (1974). These include: the 1933 Zoning By-Law, the Bland-Spence Sales Report (1949), the Top-of-the-Bank Policy (1968), the General Plan By-Law (1971) and the Parks Master Plan (1971).[1] The latter reports that 90% of the valley land is usable for recreational purposes while only 60% is publicly owned. Concern over the valley's many natural attributes being continually endangered by abuse is a valid response. In view of this and past concerns, the River Valley Study set out:

> "...to present a comprehensive review of policies and issues which relate to the future development of the River Valley and Ravine System and to bring before City Council a series of recommendations which will ensure that the policy objectives for the River Valley and Ravine System as adopted by City Council, are reviewed, revised or re-enforced in accordance with the analysis undertaken."
>
> (City of Edmonton: 1974, p. 4)

TABLE I

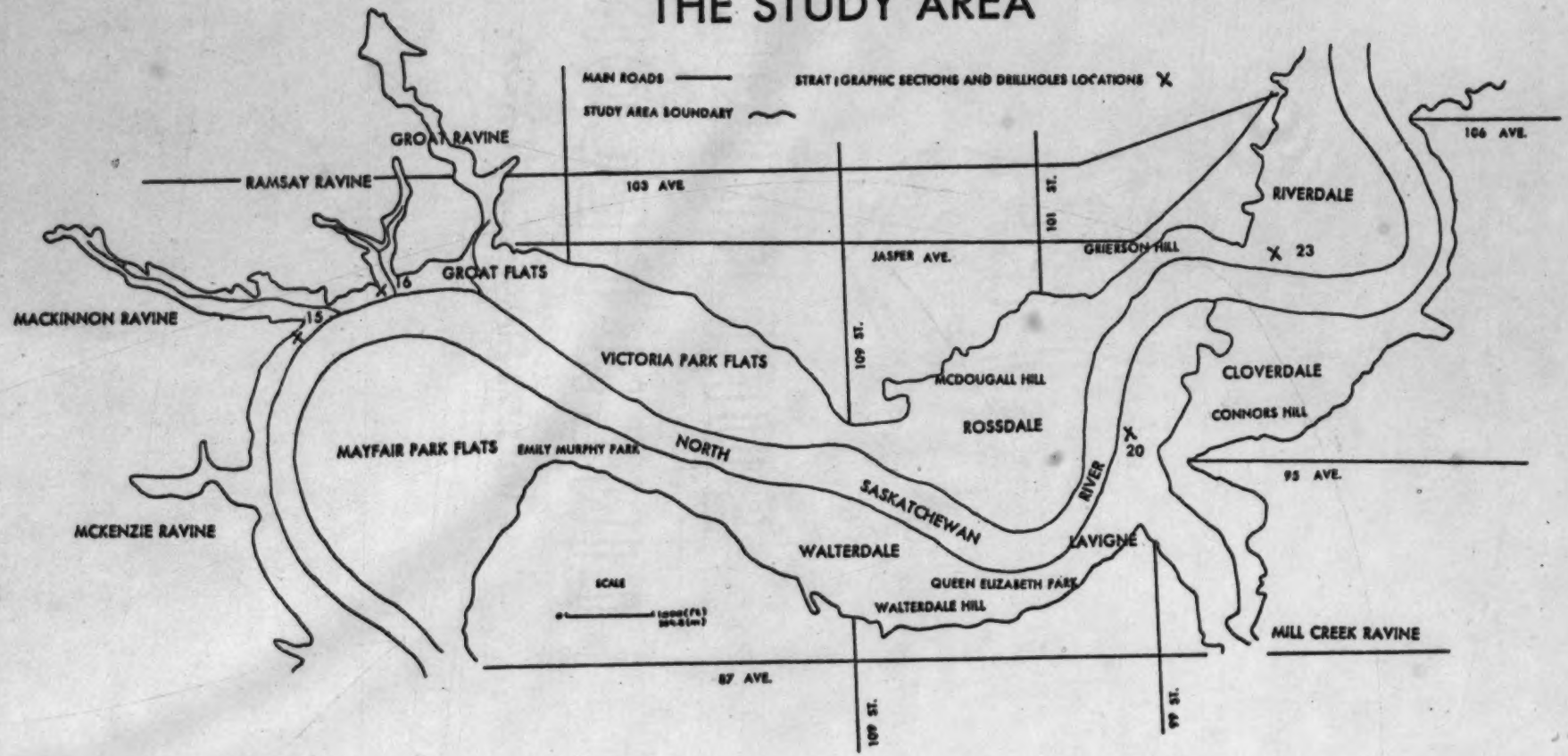
PARKLAND ACREAGES: RIVER VALLEY, RAVINES AND ADJACENT AREAS

NAME	SIZE (ACRES)	EXISTING PARKLAND (ACRES)
Mayfair	450.85 (222.83 ha)	450.85 (222.83 ha)
MacKinnon, Ramsay & Groat Ravines	194.88 (78.92 ha)	156.65 (63.47 ha)
Emily Murphy	85.93 (34.80 ha)	47.05 (19.22 ha)
Victoria	264.75 (107.24 ha)	252.43 (102.34 ha)
Walterdale	159.21 (64.35 ha)	139.89 (56.67 ha)
Queen Elizabeth	91.82 (37.23 ha)	84.63 (34.23 ha)
Rossdale	214.10 (86.61 ha)	61.48 (24.85 ha)
McDougall Hill	40.90 (16.59 ha)	21.15 (8.50 ha)
Grierson	48.27 (19.42 ha)	42.49 (17.16 ha)
Cloverdale	289.81 (117.36 ha)	156.47 (63.29 ha)
Mill Creek	261.98 (106.03 ha)	141.86 (57.38 ha)
Riverdale	184.48 (74.46 ha)	26.08 (10.52 ha)

(Source: City of Edmonton: 1972, p. 66)

FIGURE 1

THE STUDY AREA



Purpose of the Study and Specification of the Study Area

The purpose of this thesis will be to trace the process of settlement in a portion of Edmonton's North Saskatchewan River Valley and Ravines in order to ascertain how and why the present human landscape came to be. In addition, an attempt will be made to predict the future nature of the human landscape, both as a consequence of previous and present decision making. The landscape may also be postulated had few or no political controls been applied in the past.

The central portion only of the North Saskatchewan River Valley in Edmonton has been chosen as the study area. In addition to being critical to future development, this area also contains the historical core of past development in the valley. Defining the boundaries of the study area was a difficult problem. The City of Edmonton, Parks and Recreation Master Plan 1970-1980 (1972) has outlined the current definitions derived to delineate the river valley from the surrounding urbanized plain. These range from the curb lines of adjoining streets and property lines to contour lines. While perhaps serving as an accurate measure for legal and planning debates, these definitions proved too rigid for this study.

Approximate boundaries based on valley natural topography were chosen to delineate the study area. The valley was defined as the area lying below the crest of the highest bank which for the most part falls between the 2,100 ft (640.08 m) and 2,150 ft (655.32 m) contour lines. Collection of data for the main units of the study area (Mayfair Park Flats, Walterdale, Queen Elizabeth Park, Lavigne, Cloverdale, Riverdale, Rossdale, Victoria Park Flats, and Groat Flats)

was restricted to those streets and avenues that corresponded closest with the top of the valley bank (Fig. 1).

The western extremities of the study area include the bottomland of the Mayfair Park Flats meander core south to the undercut bank at approximately 87 Avenue. The study area includes the opposite undercut bank with the McKenzie and MacKinnon Ravines. The eastern extremity of the study area is the undercut bank of Riverdale at approximately 103 Avenue. The study area also includes the undercut bank south from the Dawson Bridge at 106 Avenue.

Methodology

Within the methodology to be adopted are two distinct approaches: that of historical geography and that of settlement geography. Let us examine settlement geography first. Kohn (1966) writes:

> "In general, settlement geography has to do with facilities men build in the process of occupying an area. These facilities are designed and grouped to serve specific purposes and so carry functional meanings."
> (Kohn: 1966, p. 125)

A broader definition has been given by Jordan (1966) as "the study of the form of the cultural landscape" (Jordan: 1966, p. 27). Jordan would, however, emphasize 'form' over 'function'--'form' being synonymous with 'settlement morphology' and including the vertical dimensions of buildings, the horizontal arrangement of buildings, fences, fields, etc. and material compositions (Jordan: 1966, p. 27). The approach of this study will concentrate as far as possible on both settlement morphology as described by Jordan and the functional

aspect as per Kohn.

However, as stated, the purpose of this study is to trace the process of settlement change. The element of time, thus, also places the study within the realms of historical geography. It is what Harvey (1969) would refer to as "the temporal mode of explanation."

By 'process' is meant "evolution in space content" (Ackerman: 1958, p. 31). As Clark (1954) has explained, process is not solely a search for origins but developments that form points on a continuum. The approach to be taken in the study will thus refer to origins as well as to subsequent developments. Harvey (1969) refers to this approach as "genetic and evolutionary" (Harvey: 1969, p. 241).

'Process' of settlement change lends itself to a cross-sectional approach, each cross-section including both description and explanation. The cross-sections will be presented in chronological order, each section based on the one preceding as suggested by Darby (1962). It cannot be emphasized too strongly that the essence of these sections will be 'process' and not a simple narrative of change.

Baker (1972) has noted the recent concern that historical geography should be more concerned with systematic analysis rather than with the amassing of a large collection of facts. To show more adequately the dynamics of change, he sets out a checklist frequently used by economic historians. These questions will be considered in the study in the hopes that a measure of change may be achieved. They are:

1. Delineation of the sequence--when and where did it start?
2. Order of sequence--what follows what and where?

3. Timing of sequence--why did it occur this way?
4. Rate of change--how long did the sequence take? Were some elements faster or slower and where did they occur in this manner?

(After Baker: 1972, pp. 16-17)

In summary, the methodology of this study will consist of overlapping cross-sections in chronological order to show the process of settlement change in the central river valley. A measure of change may be achieved by considering the checklist outlined by Baker (1972) from five points of view. That is, natural, political, economic, technological and social factors.

The Cross-Sections

The selection of cross-sections was made with the historical development of the whole city in mind. The human landscape of Edmonton's North Saskatchewan River Valley evolved under the same set of circumstances as the city as a whole and should not be considered a separate entity. Even in the early years of Edmonton, both valley and plain were closely interdependent politically and economically. This is still true today as is evidenced by the concern and conflict over the valley's environmental quality and the preservation of its open spaces for recreational opportunities for all Edmonton residents.

Four cross-sections were chosen covering the periods:

1. Prior to 1891
2. 1891-1915
3. 1915-1945
4. 1945-1975

The first cross-section covers that period prior to the arrival of the Calgary and Edmonton Railway in 1891. This period from the

days of occupation by Indian and fur trader to the arrival of the railway marks a time when Edmonton and its river valley were relatively isolated from the rest of Canadian society. Each chapter follows a similar format except this section (Chapter III). The time scale involved warranted a more flexible approach.

With the arrival of the railway a second period commenced and, therefore, a second cross-section is needed. Edmonton and its river valley were no longer isolated. The rival community of Strathcona was established and bridges began to span the river (once a formidable barrier to the movement of people and goods). This period of settlement expansion and diversification ended with the twin disasters of the 1915 flood and World War One.

The third cross-section, or the period 1915-1945, covers two world wars and a world depression. Dale (1969) has designated this period as one of "slow growth" for Edmonton as a whole. While the course of events in the river valley were tending to reverse from a built-up landscape to one of parks and open spaces under the guidance of city council and various economic and natural factors, these developments still relate to the total urban situation and cannot justifiably be separated.

The final cross-section, from 1945-1975, covers post World War Two developments. For Edmonton, Dale (1969) has called this a period of "rapid growth" as is evidenced in the rapid expansion of the urban area. Within the river valley, the trends of the previous period continued with all the conflicts inherent between city council policies and the preferences of local residents.

The concluding chapter may be called the fifth cross-section,

in that an attempt will be made to predict the pattern of future settlement in the study area bearing in mind all the earlier historical and geographical developments. In addition, the settlement geography of the study area will be postulated had the process of settlement been allowed to progress without the constraints imposed by political decisions regarding the river valley.

Problems

The main problems associated with the research were the often incomplete and inaccurate nature of the sources. As far as possible, this uncertainty was remedied by field checking and consultation with City of Edmonton personnel in a variety of departments. A secondary problem was associated with the long time scale which necessitated exclusion or minimization of some aspects of the study. Only the most important elements of settlement morphology and change were touched upon for the sake of brevity.

Chapter I Footnotes

1 The actual published document is dated 1972, but the plan had been adopted by city council earlier in 1971.

Chapter II

Natural Characteristics of the North Saskatchewan River Valley Study Area

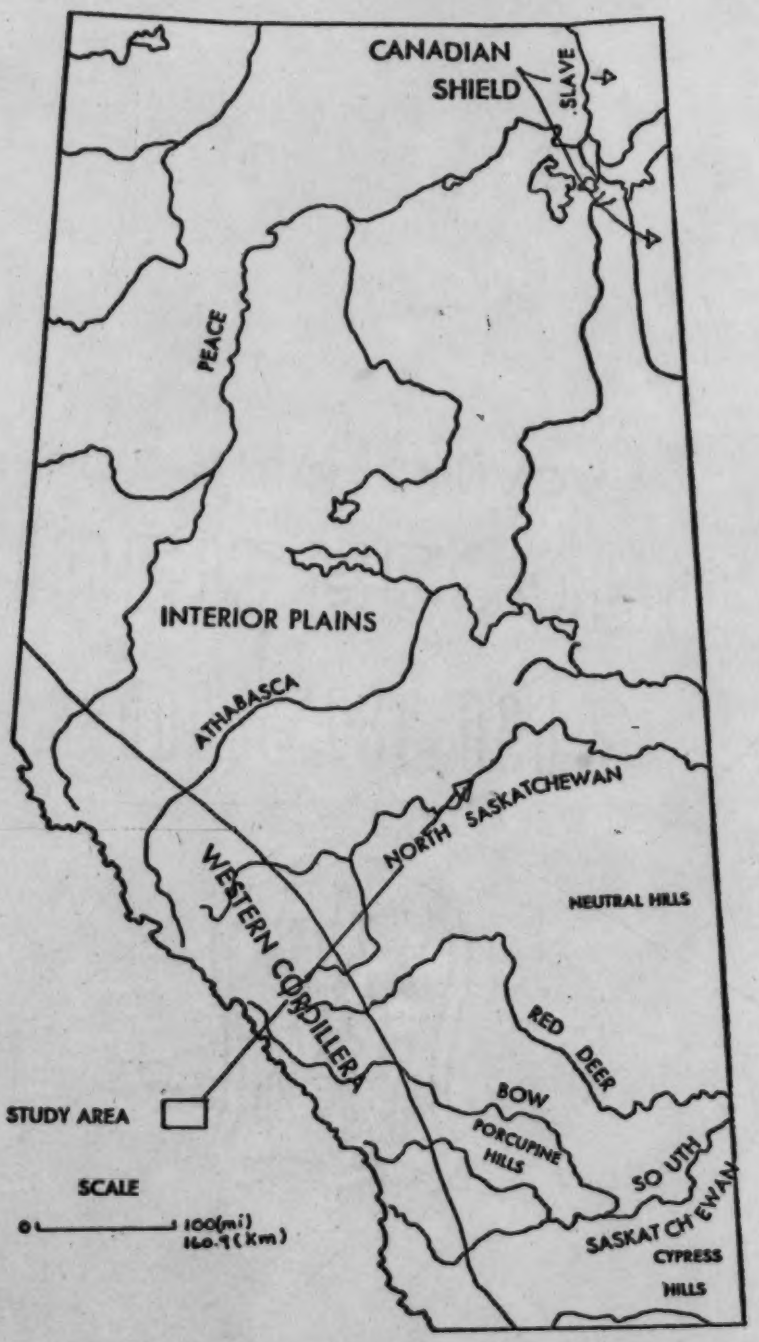
The Regional Setting

The North Saskatchewan River has its beginning in the Saskatchewan Glacier on the southwest slope of Mt. Saskatchewan (10,964 ft or 3,341.83 m) in the Rocky Mountains of Alberta. The river flows in a northeasterly then southeasterly direction through the Interior Plains (Bostock: 1970) physiographic region (Fig. 2).

The Albertan portion of the Interior Plains possesses a rolling to hilly surface sloping from elevations of 4,000 ft (1,219.20 m) near the foothills to 2,000 ft (609.60 m) toward the north and east. Many sub-regions can be identified. The most pertinent to this study is the Alberta Plain, stretching south from the Athabasca River, southeastward to the International boundary and bounded on the west and on the east by the Cordilleran Region and the Missouri Coteau respectively. Much of the Alberta Plain has elevations of approximately 2,500 ft (762 m), its surface broken by areas of low hills rising to 3,500 ft (1,066.8 m) or more such as the Neutral, Cypress and Porcupine Hills. The rapidly flowing North and South Saskatchewan Rivers and their major tributaries have incised valleys deep into the Plain. The valley of the North Saskatchewan River through the Edmonton area, for example, frequently attains a depth of 200 ft (60.96 m).

The 'broken' topography of the Alberta Plain may have acted

FIGURE 2
THE REGIONAL SETTING



SOURCE: ALBERTA DEPT. OF THE ENVIRONMENT

as a hindrance to the westward and northward advances of settlement. River transportation was facilitated, however, by the west-east orientation of streams. Despite navigational difficulties, river transportation on the North Saskatchewan played an important role in the settlement process of the Edmonton area.

Locally, the North Saskatchewan River acted as an impediment to the north-south movement of people. The width and depth of its valley and the rapidly flowing river hindered crossings. This problem was not adequately dealt with until the turn of the nineteenth century. Congestion of cross-valley traffic in the modern situation is convincing evidence that the valley still acts as a barrier.

The climate, soils and vegetation zones of the Alberta Plain have also influenced the settlement process. The physical and biological characteristics of each zone helped to shape the way of life of the aboriginal inhabitants. In turn, the native pattern of existence was to help shape the location and direction of early settlement by Europeans.

Various authors in Hardy (1967) have commented on the climate, soils and vegetation zones for the Prairie Provinces as a whole. In summary, a simple northerly gradation is evident on the Alberta Plain from a semi-arid grassland in the south to a sub-boreal mixed woods environment in the north. The North Saskatchewan River flows through a transitional parkland zone between the prairie to the south and the mixed forest to the north.

Early Exploration

Early exploration and documentation of the North Saskatchewan River dates back to 1690 when Henry Kelsey, a Hudson's Bay Company employee travelling home from York Factory, wintered by the river between The Pas and Cumberland House (Fig. 3). The impetus for Kelsey's exploration came from the fur trade. The desire to improve the trade and meet the challenge posed by French competition in western Canada, prompted the Hudson's Bay Company to send out another employee.

In 1754, Anthony Henday set out from York Factory to make contact with the Indians of the unexplored interior and persuade them to bring more pelts to the Bay. He became the first European to enter what is now Alberta. An extract from Henday's journal briefly describes a small stretch of the North Saskatchewan River:

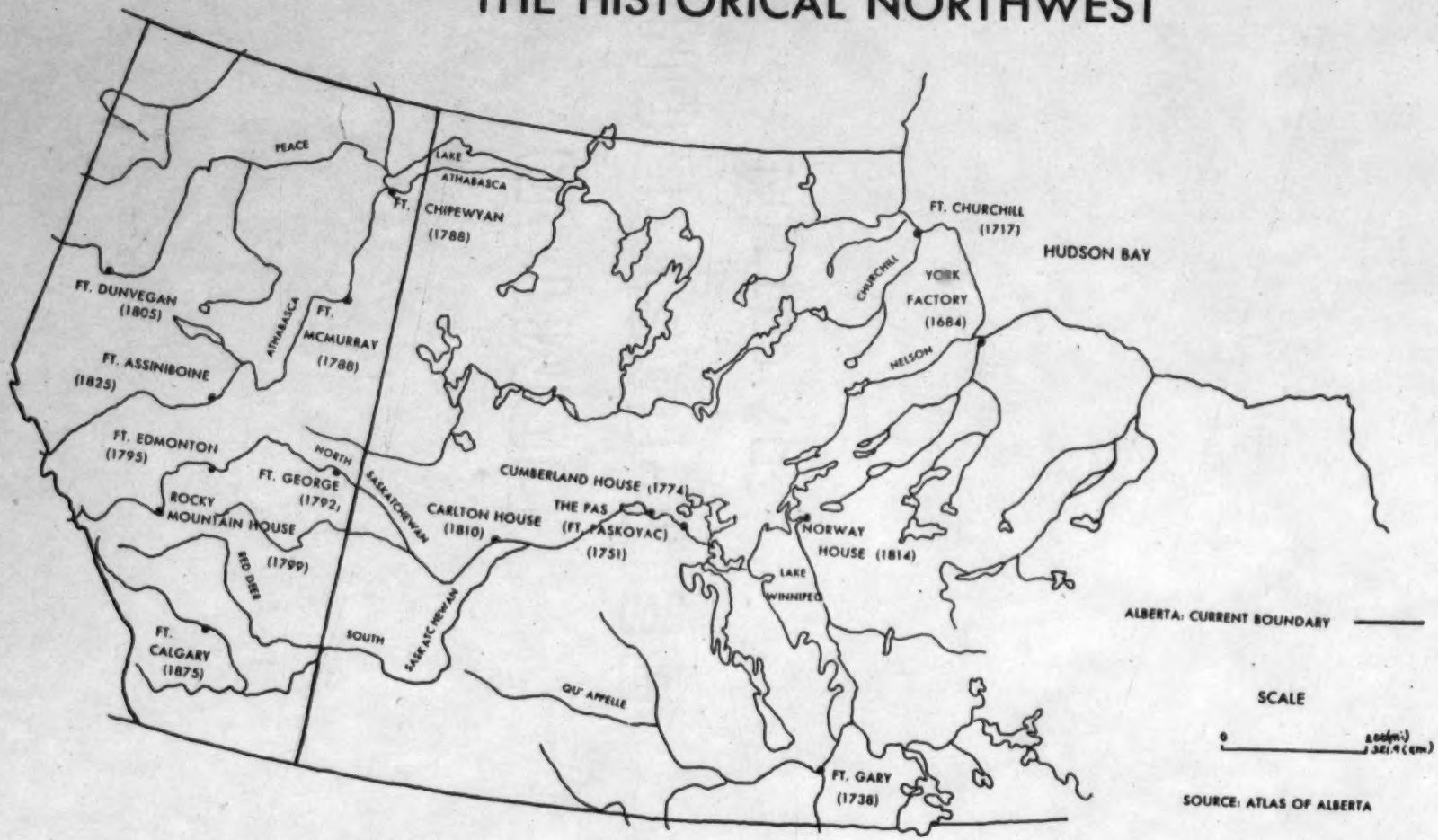
> "May 18 1755. Sunday. Paddled 22 Miles N.E. [down the North Saskatchewan River]; the river broad and deep with many Islands; the banks low & small woods, viz: Birch, Hazle, Poplar & Fir: killed four Buffalo; they are numerous about the river sides..."
> (The Journal of Anthony Henday, pp. 327-351)[1]

MacGregor has described Henday's expedition and comments that in the winter of 1754, the party must have reached the North Saskatchewan River near Edmonton (MacGregor: 1949, p. 69). However, no description of the area is provided by this author.

Exploration was given a further stimulus when, in 1770, the North West Company began to compete with the Hudson's Bay Company in the western interior. Edward Umfreville, an employee of the North West Company, published a book, in 1790, in which is included an

FIGURE 3

THE HISTORICAL NORTHWEST



excellent description of the North Saskatchewan River, providing information on climate, soils, vegetation and river hydrology (Umfreville: 1790, pp. 147-156).[2] Similarly, David Thompson's accurate observations and perceptive descriptions, based on his service for both the Hudson's Bay and North West Companies (1786-1808) were recorded in his Narrative to become what has been termed the "first regional geography of Western Canada" (Warkentin: 1964, p. 93). Much information collected during Thompson's four journeys into Alberta pertained to his travels along the North Saskatchewan River.

Scientific observers were early attached to exploring parties destined for Western Canada. The Palliser Expedition (1857-1860), for example, was officially reported in Parliamentary Papers (1859, 1860 and 1863) and also earlier in the Journal of the Royal Geographical Society. Captain Palliser's comments regarding the North Saskatchewan River Valley are particularly noteworthy as are those comments regarding the possibilities for future development by members of the party: James Hector, a naturalist-geologist, and M. Bourgeau, a botonist. Palliser comments:

> "Almost everywhere along the course of the North Saskatchewan are to be found eligible situations for agricultural settlement, a sufficiency of good soil is everywhere to be found, nor are these advantages merely confined to the neighbourhood of the river;..."
> (United Kingdom. The Journals, Detailed Reports...Palliser: London 1863, pp. 6-13)/3/

The Study Area

Local Geology

McPherson and Kathol (1975) have described the urban geology of the Edmonton area, including in their material considerable detail on the North Saskatchewan River Valley. River valley geology has also been described by Westgate (1969) and by the Capital City Recreation Park, Department of the Environment/Recreation Task Force (1975a,b).

A geological description of the North Saskatchewan River Valley must necessarily include the Edmonton area as many local features outcrop along the valley walls. Generally, the bedrock of Edmonton is composed of Upper Cretaceous rocks. Of importance to the study area, is the Edmonton Formation which outcrops in many locations along the valley. Outcrops are also to be found in Mill Creek Ravine. McPherson and Kathol (1975: p. 18) report the average thickness of the Edmonton Formation in Edmonton to be 560 ft (170.69 m). Coal seams, bentonite, claystone and sideritic sandstone beds are commonly found in this formation.

Two additional structures are the Bearpaw and Belly River Formations. Although directly underlying the Edmonton Formation, neither have been identified specifically in the study area.

The bedrock topography was established in pre-glacial times and has since been modified by glaciation and erosion. Rivers flowing northeast from the Rocky Mountains formed a dendritic drainage pattern in the soft, flat-lying rock. Sediments deposited by the pre-glacial drainage system can be identified along the banks of the

North Saskatchewan River towards Mayfair Park Flats. These alluvial deposits were laid down from the Oligocene until well into the Quaternary, when the advent of the Laurentide Ice Sheet ended the deposition.[4] The Saskatchewan sands and gravels (also to be found in the study area) are an example of such pre-glacial alluvium that has been exploited for commercial use.

It is important to note at this juncture that the North Saskatchewan River has excavated its present valley since glaciation. The river cut down through the soft, unconsolidated bedrock to form a fairly narrow valley, with steep sides. At a point, approximately below Clover Bar (approximately 7 mi/11.3 km downriver from the eastern boundary of the study area) the river valley widens abruptly, having adopted the old pre-glacial channel. Here, the valley walls are not so high and less steep. Westgate (1969) comments that "the factors controlling the localization of the North Saskatchewan River are not fully understood as yet" (Westgate: 1969, p. 138). It is, however, evident that the study area valley is post-glacial in origin and reflective of severe bedrock erosion.

Present day surficial geology has modified the bedrock topography with sediment deposited in glacial and post-glacial times. The Quaternary landforms are largely composed of lacustrine, glacio-lacustrine and fluvial material.

Glacial till and glacio-lacustrine sediments are common throughout the Edmonton area. The latter sediments are associated with glacial Lake Edmonton and consist of sand, silt and clay with beds of till. The deposits occur in a broad belt approximately following the North Saskatchewan River. Within the valley, however,

the sediments have been largely removed by erosion. Small outcrops are visible in the study area where the river has eroded the deposits, as for example, along Mill Creek Ravine.

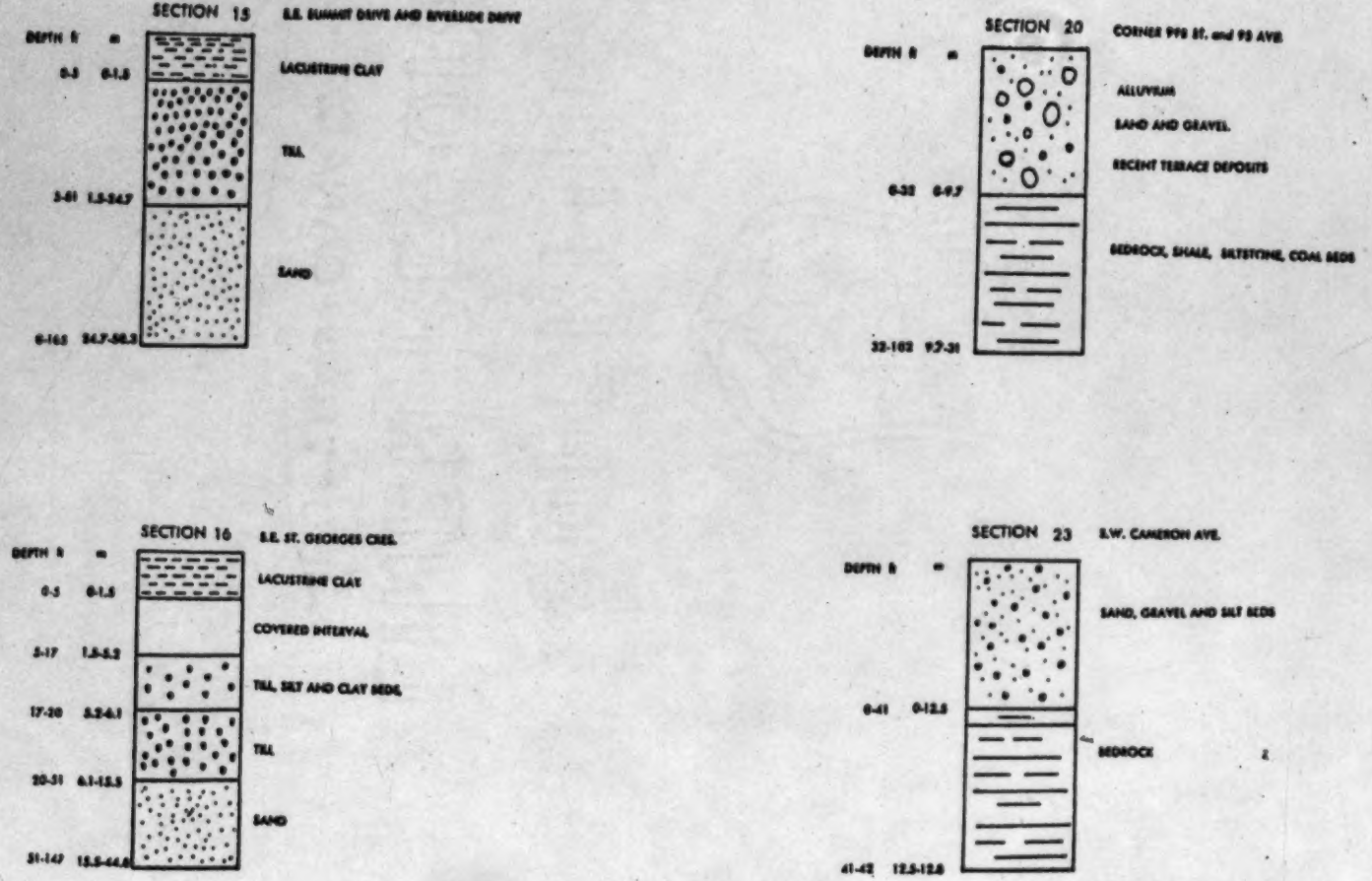
Post-glacial deposits are the most common in the study area. With glacial retreat and subsequent land uplift, the river eroded down through the soft bedrock and glacial material creating in its progress four terrace levels: at 30 ft (9.14 m), 65 ft (19.81 m), 100 ft (30.48 m) and 150 ft (45.72 m) above flood plain level. Alluvial deposits on these terraces are mainly composed of sand, gravel, silt and clay. The youngest terrace (30 ft or 9.14 m) has a sand and gravel layer up to 20 ft (6.10 m) thick. The sand and gravel is usually overlain by silt, clay and fine sand up to 30 ft (9.14 m) thick (McPherson and Kathol: 1975, p. 28). The older terraces are developed discontinually, but also contain deposits of sand and gravel.

McPherson and Kathol (1972) have recorded the stratigraphic detail of sections and drillholes taken throughout the Edmonton area. Four located within the study area give a good representation of the deposits discussed above (Fig. 4).

Geologic Resources

The main geologically related natural resources of the study area are groundwater, sand, gravel and coal. Retrieval of ground-water from the lower terrace alluvium has not yet been attempted, although, some potential for a municipal water supply exists (McPherson and Kathol: 1975, p. 35). Sand and gravel is found on the terraces and river bars. Although legislation now prohibits exploitation of the

FIGURE 4 STRATIGRAPHIC SECTIONS AND DRILLHOLES IN THE STUDY AREA (SEE FIG. 1)



SOURCE: MACPHERSON AND KATHOL 1972

river bars, those deposits on the lower terrace are extensive enough for commercial exploitation. The terrace deposits are most suitable for road base and fill aggregate, their clay content being too high for use in concrete or asphalt. The clay was, however, exploited to support a flourishing brick-making industry that once existed in the valley.

Coal, historically an important resource, is still to be found in significant quantities throughout the study area. The coal seams are contained within the Edmonton Formation. Many early miners worked a seam, known as the Number 7 seam, which varied in thickness from 6 in (152.4 mm) to 6 ft (1.83 m) (Hamilton: 1971, p. 11). The seam outcropped on both sides of the river as far upstream as the High Level Bridge.

The coal was of the sub-bituminous variety, clean and easy to transport. The thinness of the overburden was an advantage to the miner in that most shafts were less than 200 ft (60.96 m) deep. Exposed outcrops along the valley walls also helped to keep costs to a minimum. Extensive timbering of shafts was, however, necessary to prevent collapse of the soft overburden. Flooding was also a major problem.

A table by McPherson and Kathol (1975), pertaining to the development of Edmonton geologic deposits has been modified to show only those structures found in the study area. This information gives some indication of the problems facing early settlers, provides insight into present problems and suggests restrictions on future development (Table II).

TABLE II

GEOLOGIC DEPOSITS

TYPE	LITHOLOGY	TOPOGRAPHY	SUITABILITY FOR CONSTRUCTION	SLOPE STABILITY	MINERALS
A. Gully, creek, valley scarp	exposed bedrock and surficial deposits	steep to moderate slopes	unsuitable (steep unstable slopes and ground-water discharge)	steep, unstable slopes	minor aggregate deposits in stream alluvium; exposed coal seams
B. River terrace and stream alluvium	alluvial gravel, sand, silt and clay	flat lying; valley bottom and terraces	generally suitable (high ground-water table)	relatively stable	significant sand and gravel resources
C. Glaciolacustrine silt and clay	bedded silt and clay with minor lenses	flat lying	unsuitable (high ground-water table)	long term instability of over-steepened slopes	low potential as source of brick clay
D. Glaciolacustrine sand and silty clay	sand and silty clay with minor silt and clay (lenses and gravel pockets)	flat lying	unsuitable (high ground-water table)	generally stable	negligible

TABLE II (cont'd)

GEOLOGIC DEPOSITS

TYPE	LITHOLOGY	TOPOGRAPHY	SUITABILITY FOR CONSTRUCTION	SLOPE STABILITY	MINERALS
E. Mixed lacustrine and till deposits	bedded silt, sand and clay overlying till	relatively flat to gently rolling	unsuitable (potentially high groundwater table; material has high compressibility)	stable on gentle slopes	negligible
F. Outwash	mainly sand with gravel lenses	flat to gently rolling	generally suitable (some areas may be saturated)	generally stable	road fill and aggregate
G. Saskatchewan sands and gravels	sorted sand and minor silt and clay	subsurface	suitable (if not saturated)	generally stable	source of concrete aggregate
H. Bedrock-shale	shale, siltstone, coal seams, bentonite layers	subsurface	suitable (jointing may reduce material's strength)	generally unstable	low potential as source of soft coal and bentonite

TABLE II (cont'd)

GEOLOGIC DEPOSITS

TYPE	LITHOLOGY	TOPOGRAPHY	SUITABILITY FOR CONSTRUCTION	SLOPE STABILITY	MINERALS
I. Bedrock sandstone	sandstone, minor siltstone	subsurface	suitable (jointing may reduce material's strength)	relatively stable	negligible

(Source: McPherson and Kathol: 1975)

Topography

The North Saskatchewan River meanders in wide loops through the study area from southwest to northeast. The river covers a straight-line distance of some 2.7 mi (4.43 km), with a width of approximately 0.2 mi (0.32 km).

The main meander cores constitute the alluvial flats of Mayfair Park, Rossdale, Riverdale and Cloverdale. Slopes on the valley bottom are generally less than 5% and are, for all practical purposes, stable. The flat lands of Rossdale, Riverdale and Cloverdale make up the major residential areas in the study area today. Mayfair Park Flats, in contrast, had been set aside as a recreational area prior to 1914 as part of city policy toward park development (Dale, 1969).

Where the channel straightens, the meander cores are less developed, being narrower and less arcuate. These areas include what are now Victoria Park and Kinsmen Park (Walterdale).

The North Saskatchewan River Valley, itself, is approximately 200 ft (60.96 mm) in depth, with a top width of 0.7 mi (1.13 km) and a bottom width of 0.3 mi (0.48 km). The valley walls in the study area have slopes greater than 20% and in some places exceed 30%. Slope stability varies from moderately to severly unstable, resulting locally in such topographic features as slumps and gullies.

The steepest slopes occur on the undercut banks and deserve the term 'cliff' due to their near-vertical nature. The cliffs are located northwest of Mayfair Park Flats between the McKenzie and Groat Ravines, on the south bank immediately north of the University of Alberta Campus and to a lesser extent, on the south bank opposite

Rossdale, including Lavigne and Queen Elizabeth Park. The slopes rising to the rear of the meander cores of Rossdale, Riverdale and Cloverdale are less steep.

The major tributary ravines in the study area are: McKenzie, MacKinnon, Ramsay, Groat and Mill Creek Ravines. The valley walls of the ravines are topographically similar to the main valley walls. The ravine walls slope at an angle greater than 30% to a level and narrow valley floor. The valley floor of Mill Creek Ravine, for example, is no more than 100 ft (30.48 m) wide.

Additional slopes can be identified in the study area. These include terrace slopes and the river banks. Four terrace levels can be identified; the lowermost or youngest is found at the 30 ft (9.14 m) level. Older terrace levels are less continuous, having been modified by erosion and human activity. The second terrace is best observed at Emily Murphy Park between 60 ft (18.29 m) and 70 ft (21.34 m) above river level. In general, slopes are greater than 10% and their local height does not usually exceed 50 ft (15.24 m). The terrace slopes, unlike the valley walls above, are not prone to slumping and are fairly stable.

The slopes along the active river bank are greater than 30%, with stability depending on the amount of erosion and human interference. Removal of vegetation by human interference aggravates the situation and usually results in gullying and sheetwash.

Finally, one must consider certain man-made features with direct impact on the local valley topography. These include landfill sites and improvement areas. A major fill or improvement area is located on Grierson Hill. The fill is primarily clay and was

deposited in order to maintain bank stability after a major slide in 1905. The effects of such dumping will be discussed later.

The topography of the study area will be shown to have a marked impact on the process of settlement. The depth of the valley and steepness of its walls posed a major problem in traversing the area. Even today, traffic congestion occurs during rush hours on the limited number of bridges that span the valley. Construction of buildings and roads on the valley slopes was an additional problem.

Climate

The climate of the Edmonton area is continental in characteristics. Temperatures are variable with warm summers and long, cold winters. Summer generally lasts from late April to mid-October. The mean, daily temperature in July is 63.4 F (17.4 C). Relative humidity is usually low, the July mean being 63%. Winter generally lasts five months, from the first week in November to the first week in April. The mean, daily temperature in January is 5.5 F (-14.7.C). Chinooks rarely occur in the Edmonton area to modify winter conditions.

Precipitation averages 18.6 in (47.24 cm) per annum. Seventy per cent of this falls as rain during the summer growing season. Over 3 in (7.62 cm) may fall in the wettest months of June and July. Snowfall averages 54 in (137.16 cm) and falls primarily from November to March. Blizzards are infrequent.

The North Saskatchewan River Valley and Ravines, however, lie up to 200 ft (60.96 m) below the plain. Micro-climatic variations thus occur within the study area that affect soils and vegetation and perhaps, to a limited extent, human occupance.

Observations were carried out in the study area by Klassen (1962) and included data on the valley, ravines and the plain. Klassen found that, on clear days, temperatures on the plain were higher than in the valley or ravines. Furthermore, temperatures were consistently lower for more hours in the ravines than in the valley or on the plain. The relative humidity was found to be higher and less variable in the ravines than in the other locations. Respectively, the relative humidity on the valley floor was higher and less variable than on the plain.

Klassen comments:

> "Except during periods of strong and high prevailing winds, the physical conditions of the atmosphere on the plain, in the ravines, and in the main river valley are distinctly different. The conditions in these three regions are related by a nocturnal plain to valley wind that is physically distinct from the prevailing air flow over the region."
> (Klassen: 1962, p. 8)

The air drainage pattern commences down the ravine and valley at sundown and dissipates at sunrise. These winds are generally slight, not exceeding 5 mi/h (2.23 m/s). Prevailing winds dominate the valley and ravines during the daytime.

Aspect of slope also accounts for climate variations within the study area. North-facing slopes are cooler and moister than the virtually semi-arid south-facing slopes. This factor and the above considerations have had an important bearing on the pattern of vegetation in the area.

Soils

Soils of the North Saskatchewan River Valley and Ravines have developed on recent alluvial deposits and are basically of two types. Soils of the ravine and valley slopes have poorly developed horizons. Slumping, gullying, sheet wash, creep and undercutting along the river's edge are responsible for the incompletely developed, disturbed or non-existent soils. Those soils that have developed on the undisturbed alluvial flats have been described as orthic regosols and chernozenms (Alberta Department of the Environment/Recreation Task Force: 1975a, p. 26).

Soils of the alluvial flats have a water table generally less than 5 ft (1.52 m) below the surface and are well drained. This characteristic, in combination with the stone-free and silty nature of the soils and flat relief, provides excellent conditions for agriculture. In addition, the warm growing season, combined with sunny days and a moderate rainfall tended to increase the attractiveness of the area.

In the early days of settlement, small homesteads were scattered along the terraces of the North Saskatchewan River Valley. Numerous agricultural enterprises existed within the study area. Mayfair Park Flats, for example, was farmland long before being allocated for recreational space. Until the late 1950's, market gardening was also practised on Walterdale Flats and on Groat and Victoria Park Flats.

Vegetation

Vegetation in the North Saskatchewan River Valley is

representative of the original cover that has been subjected to physical and human disturbance. Human interference has been especially marked. For example, fifty to seventy-five years ago, lumber was a major commodity in the Edmonton area. The river valley and ravines, both locally and upstream, were exploited for private use and as supply for the lumber mills of Edmonton and Strathcona.

Very generally, the vegetation remaining in the study area falls into two types; those species that will grow on the warmer, semi-arid, south-facing slopes (dominantly shrubs and grasses) and those that will grow on the colder, moister, north-facing slopes (dominantly trees). The condition of aspect, topographic, climatic, edaphic and human factors all helped to determine the location of differing vegetative associations. The Alberta Department of the Environment/Recreation Task Force (1975b) has further divided the vegetation pattern into eight different types. This information is summarized in Table III.[5]

Hydrology

The long term mean discharge of the North Saskatchewan River at Edmonton, based on fifty-five years of recorded data is 7,770 ft 3/s (791,763 m 3/h). The minimum flow recorded was 220 ft 3/s (22,418 m 3/h) in January, 1940 and the maximum of 204,500 ft 3/s (20,838,550 m 3/h) was recorded in June, 1915 (Kellerhals, Neill and Bray: 1972). Seasonal variation in regime can, thus, be considerable. The river is at its lowest level during the winter and at its highest usually by late June. The increase in summer flow occurs as a result of rainfall in the catchment area and the melting glaciers and

TABLE III

VEGETATION TYPES IN THE STUDY AREA

TYPE	LOCATION	DOMINANT SPECIES
A. Balsam Poplar-White Spruce Forest	extensive, most common on south side	balsam poplar (Populus balsamifera); white spruce (Picea glauca)
B. Balsam Poplar-Shrub	throughout area, especially along river banks	aspen (Populus tremuloides); willow (Salix spp); alder (Alnus spp); caragana, lilac, honeysuckle, etc.
C. White Spruce-Moss	isolated stands, often on steep slopes	white spruce (Picea glauca); herbs and shrubs rare
D. White Spruce-Herb-Moss	once covered most of Edmonton area; small stands on south side near Lavigne	same as above with herbs and shrubs
E. Maple-Willow Scrub	on dry side slopes and on parts of river bank	Manitoba maple (Acer negundo); green ash (Fraximus pennsylcanica var. subintegerina); small stands of balsam poplar (Populus balsamifera) and aspen (Populus tremuloides); scattered shrubs
F. Cultivated Grasses	golf courses and lawns	scattered trees; balsam poplar (Populus balsamifera); white spruce (Picea glauca); green ash (Fraximus pennsylcanica var. subintegerina)

TABLE III (cont'd)

VEGETATION TYPES IN THE STUDY AREA

TYPE	LOCATION	DOMINANT SPECIES
G. Wild Grasses	on land originally cleared for development	
H. Bare Open Areas	recent clearings for buildings, parks, sanitary fills, etc.	absence of vegetation

(Source: Alberta Department of the Environment: 1975b)

snowfields in the Rocky Mountains.

Seasonal fluctuation in regime was a particular hindrance to water transportation. Navigation of the North Saskatchewan River was difficult at the best of times due to channel shallowness and hidden obstructions. When the river level dropped, however, the situation became even more difficult. Water transportation will be discussed in the following chapters.

The regime of the North Saskatchewan River has also had a continued effect on settlement in the study area. The bank-full height, that is, the point when the river occupies the entire channel and beyond which it may overspill its banks, occurs at 38.2 ft (11.64 m) above mean bed level. Beyond this level, the river flat communities in the study area are in danger of being flooded. Measurements to monitor river height are recorded at the Low Level Bridge.[6]

Flood conditions appear to be caused by heavy rain-storms in the catchment area during a period from April to June when the ground is still saturated. Several floods have occurred in the study area. The largest and most devastating occurred in June of 1915 when a discharge of 204,500 ft 3/s (20,838,550 m 3/h) was recorded. The August 1899 flood was recorded at 180,000 ft 3/s (18,342,000 m 3/h).[7] The flood of 1952, recorded at 132,000 ft 3/s (13,450,800 m 3/h) was also serious. Flood danger was anticipated in 1948, 1950, 1954, 1965 and 1972 but little damage was sustained.

The Bighorn and Brazeau Dams (1972) far upstream are considered to have only a small effect on flood peaks (Alberta Department of the Environment: 1974). The two dams were constructed mainly for power generation and winter flow augmentation. Flood

control was not paramount in their design.

Despite problems associated with flooding and water transportation, the North Saskatchewan River provides the study area and the wider locale with a source of water for both domestic and industrial use. In addition, the river has been used in a limited degree for recreational activities such as boating in the summer and skating in the winter.

Channel Features and Processes

The North Saskatchewan River within the study area is shallow, not generally exceeding 15 ft (4.57 m) in depth. The width and depth of the channel vary directly with discharge. With a long-term, mean discharge of 7,770 ft 3/s (791,763 m 3/h), however, the width and depth of the channel would be 447 ft (136.25 m) and 4.6 ft (1.40 m) respectively.

The channel bed is composed of gravel overlying easily erodible shale. A large quantity of material is transported by the river both as suspended and bed load, especially during the spring and at high stages during the summer. Consequently, gravel bars are a common feature in the study area.

The transported load and swiftly-flowing water (approximately 5 to 9 mi/h/2.23 to 4.02 m/s) combine to produce a powerful erosive agent. The river's lateral activity has resulted in an entrenched meander pattern, with characteristic slip-off and cut-off banks.

Construction and the clearing of trees has a tendency to increase channel erosion by increasing the sediment load. This has been particularly evident in the study area. The Grierson Hill slide

of 1905 occurred partly as a result of the river undercutting the bank. The dumping of fill to stabilize the bank has compounded the problem by narrowing the already slide constricted channel. The river's velocity and, consequently, erosive force has thus been vigorously renewed at this point.

Ice Conditions

The ice conditions of the North Saskatchewan River have had an important role to play in the lives of the study area occupants. The mean freeze-up date for the Edmonton area is November 6th and the mean break-up date is April 16. These dates can, however, vary considerably from the early dates of October 12 and February 28 respectively to the latest dates of December 7 and May 25 respectively (Kellerhals, Neill and Bray: 1972).

Ice thickness can attain 20 to 30 in (508 to 762 mm) (Wonders: 1959a, p. 10). Prior to bridge construction at the turn of the century, the residents of Edmonton and Strathcona could cross the river with ease on the frozen surface. The Arctic Ice and Twin City Ice Companies, located in Rossdale, used the river as a source of ice for many years. The ice surface was also used for recreational pastimes such as skating and hockey.

Conclusion

The geology, topography, climate, soils, vegetation and river hydrology of the North Saskatchewan River Valley have acted both to hinder and to stimulate the process of settlement in the study area.

These natural influences will be discussed in greater detail in subsequent chapters.

The natural influences on human activity have, however, been matched, if not surpassed by the reverse influence of human activity on the valley environment. Disturbance of the soil and vegetation through construction and park development have changed the valley's appearance significantly since the days of first contact by European explorers. It is thus difficult to obtain a complete description of the study area as it appeared to early visitors. The original conditions must be extrapolated from present conditions and the scraps of historical descriptions that are available.

Chapter II Footnotes

1 This reference is cited in Warkentin: 1964, p. 54.

2 This reference is cited in Warkentin: 1964, pp. 72-75.

3 This reference is cited in Warkentin: 1964, p. 185.

4 1.8 to 2 million years ago based on radiocarbon dating of interglacial organic deposits, core studies of ocean floor deposits and other evidence (Monkhouse: 1970, p. 247).

5 This report was intended as a preliminary addendum to the Capital City Recreation Park Inventory and Analysis Report, Vol. 1, 1975a.

6 "Gauge height zero corresponds to the mean bed level at the recording on the Low Level Bridge which is at elevation 1999.41 geodetic or 2042.41 city datum." (Alberta Department of the Environment: 1974, p. 11).

7 It is evident from the literature and newspaper research that heavy rainstorms in the catchment area during a period of ground saturation produced the 1899 and 1915 floods.

Chapter III

Settlement Morphology Prior to 1891

The Indian Period

Before the arrival of European explorers and fur traders, most of Alberta south of the North Saskatchewan River was claimed by the Blackfoot Confederacy, comprising the Blood, Piegan and Blackfoot peoples. A state of continual warfare existed between these plains Indians and the Woodland Cree to the north. The North Saskatchewan River was the disputed boundary that separated the two enemies and skirmishes were frequent.

With the threat of repeated attacks, it is unlikely that encampments would have been permanent features in the river valley. Historical records describing Indian encampments in the study area do not appear until the establishment of the fur trading posts of Forts Edmonton and Augustus in the early nineteenth century. Archeological evidence is also fragmentary.

The Cree Indians had, however, been making use of the river as a transportation route to convey furs to the Hudson's Bay Company posts on Hudson Bay ever since the company's organization in 1670. Travel was by means of canoe along the North Saskatchewan and Nelson Rivers--a route that was also to permit Europeans to penetrate the west.

The Fur Trading Forts

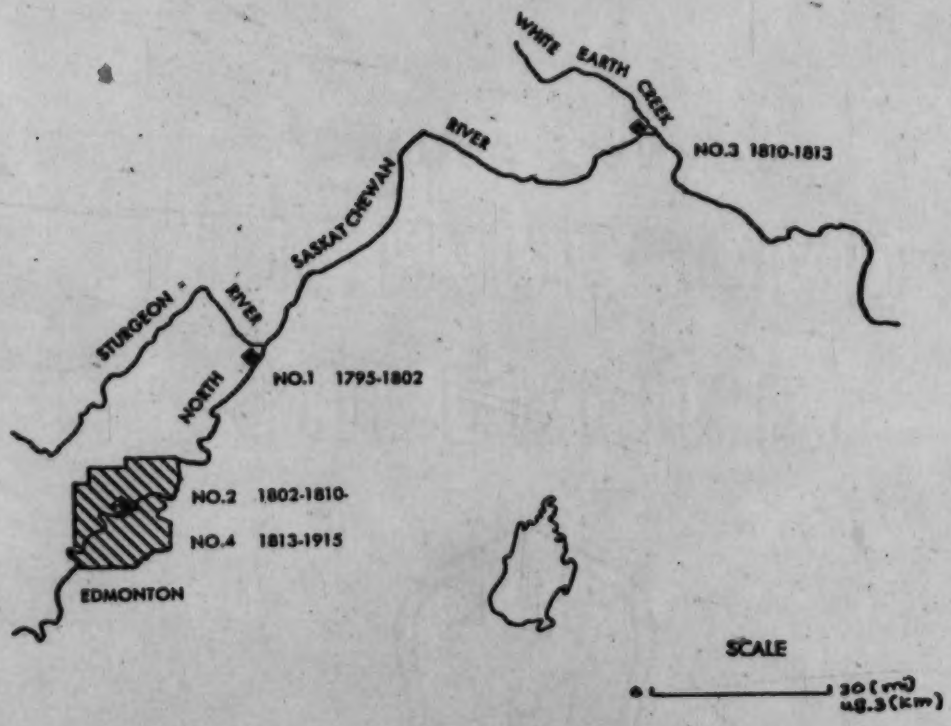
The rival organizations of the Hudson's Bay, North West and X.Y. Companies, desirous of expanding their shares in the fur trade, gradually opened the North Saskatchewan with the establishment of numerous forts along its banks. In the Edmonton area, these forts were transient features of the North Saskatchewan River Valley--a reflection of changing economic and political conditions in the territory as a whole. In the fall of 1795, Duncan McGillivray and Angus Shaw of the North West Company drew up plans for a fort at the confluence of the Sturgeon and the North Saskatchewan Rivers (Fig. 5). The post, Fort Augustus, was completed in the fall and Angus Shaw was placed in charge. A Hudson's Bay Company post, named Edmonton House, was established in competition, nearby, the following spring (1796) under William Tomison. Both forts were located on the north bank of the North Saskatchewan River to reduce the risk of attack by Blackfeet.

Six years later, in 1802, both forts were removed upstream to a new site within the present city limits near the Rossdale Generating Station on the valley bottom. The rival companies at the Sturgeon River site had trapped out the fur-bearing animals and had cut down the timber in the immediate area, thereby placing themselves short of fuel, construction and trade materials. The new site provided a convenient landing place for river traffic, a reasonably low river crossing, flat land for construction and was furthermore agreeable to visiting Indians.

Forts Edmonton and Augustus now became the supply depots and departure points for fur brigades heading still farther into the north west. In addition other outlying posts such as Rocky Mountain House

FIGURE 5

FORT LOCATIONS



SOURCE: MACGREGOR:1967

and Fort Assiniboine depended on the two valley forts to supply them with provisions. The first recorded indication of agricultural activities in the study area refers to barley and vegetables planted on the alluvial flat adjacent to the forts at this time.

Oliver, writing in 1930, describes the location of the forts in the study area. While Fort Edmonton was located on the 'lower flat' near the site of the present Generating Station, the North West Company's post, Fort Augustus, "was situated on the 'upper flat,' now the civic golf course near the westerly line of the Hudson's Bay Reserve. Grass-grown depressions marked the location of both the old riverside posts fifty years ago and their active existence was within the memory of residents then living" (Oliver: 1930, p. 80). However, the location of the forts has been recently contended. The augument against the traditional view has been presented by Day (1975).

Both Oliver (1930) and MacGregor (1967) mention the existence of the X.Y. Company in the study area. This company was absorbed by the North West Company in 1804 and few records of its operations were retained. Consequently, the location of the X.Y. post cannot now be determined. Oliver (1930) claimed that this younger competitor in the fur trade was the first to select Edmonton as a site for a trading post (Oliver: 1930, p. 78).

This brief flurry of activity in the study area ended in 1810, when Alexander Henry and James Hughes cooperated in moving their respective establishments of Fort Augustus and Edmonton House sixty-five miles downriver to the mouth of White Earth Creek. The two forts performed the same functions as at the previous location. The main advantage was derived from the command position of the northerly

routes to and from Lesser Slave Lake and the Upper Athabasca. Archealogical excavations in 1968 and 1969 at this location determined the extent of the forts that were contained within a common stockade for defensive purposes. Moreover, as has been noted previously, the north bank site also provided protection from Blackfoot attack.

This new site soon proved to be unsatisfactory and in the winter of 1812-1813 a combined transfer was made to the old second site near the Rossdale Generating Station.[1] There were a number of reasons for this move. Primarily, David Thompson's successful exploration of the Athabasca Pass and the Columbia River as a route to the Pacific trade made the former location a more convenient base. The Athabasca River was a relatively short portage from the Rossdale site. Easy access to the Pacific was essential in order that the North West and Hudson's Bay Companies be able to compete with American fur trade expansion. James Bird, in charge of Edmonton House, writes of the White Earth site:

> "...all very well but very few Indians have visited this place in the course of the summer and consequently no furs or provisions of importance have been procured here, indeed the situation of this factory proves to be so inconvenient that I intend building a new one..."
>
> (Sept. 1812)[2,3]

At the Rossdale location, the two companies once again shared a common stockade for defense. After amalgamation of the North West and Hudson's Bay Companies in 1821, the North West Company's portion of the stockade was relegated to housing the increased number of people and storing the increased amount of provisions coming to the

fort.

Edmonton House was for nearly twenty years the leading distribution centre in the Hudson's Bay territory. The establishment was also able to help provision itself with produce from farmland attached to the fort. Wheat, barley, oats, potatoes and other assorted vegetables were successfully grown, although no evidence could be found to suggest the acreages involved or the amounts produced.

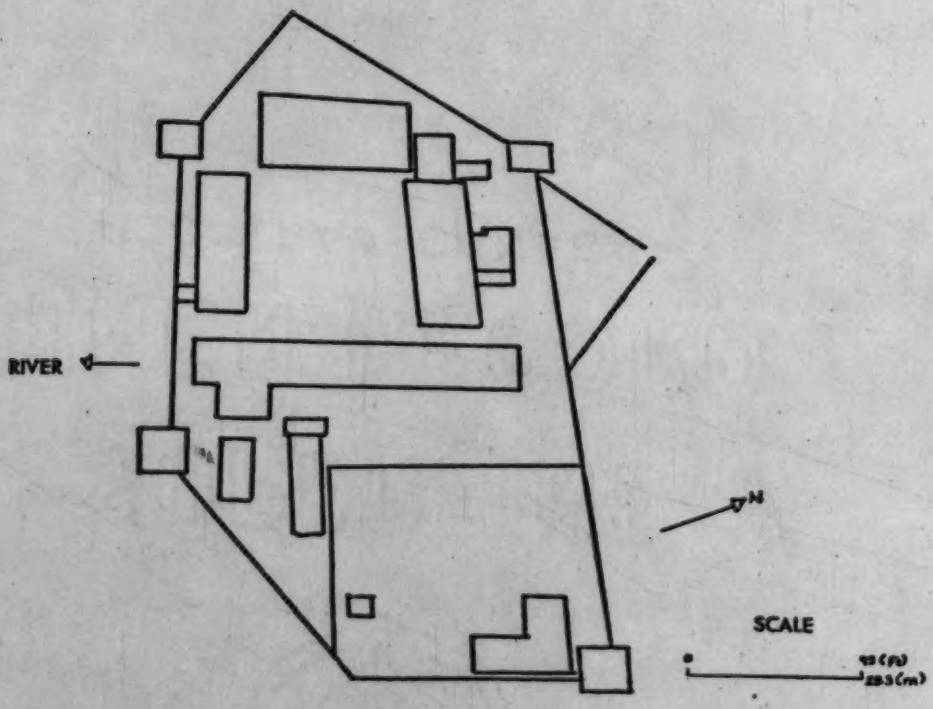
Some time after 1830, Edmonton House was moved to the high bench below the present Legislative Buildings. A flood in 1825 had forced the occupants temporarily to evacuate. Another flood in 1830 finally precipitated the move. Chief Factor Rowand supervised the building of the fort and 'Rowand's Folly' or the 'Big House' as shown in the 1846 'Vavasour Plan.' The fort was enlarged in 1861 to accommodate the growing trade and commerce carried on there (Fig. 6).

The final site of Fort Edmonton merits detailed discussion due to its importance in helping to initiate settlement in both the study area and Edmonton generally.[4] The fort was the main trade centre for seven Indian tribes: the Cree and Assiniboine who lived nearby and the visiting Blackfoot, Sarcee, Gros Ventre, Piegan and Bloods. The trading Indians camped behind the fort and also on Victoria Park Flats. The former locality occupied approximately the area of 110 Street between 98 Avenue and 99 Avenue.[5] Buffalo meat for pemmican (to supply the northern posts) and furs were traded.

Other important activities included the building of York boats for the brigades travelling the North Saskatchewan and the raising of

FIGURE 6

THE VAVASOUR PLAN 1846



FT. EDMONTON

SOURCE: PROVINCIAL MUSEUM AND ARCHIVES

horses and sled dogs for the overland brigades. The fort also had a blacksmith forge using coal extracted from the river banks and a carpenter's shop for the building and mending of carts, sleighs, harnesses and other needed appliances. Behind the fort, there was a windmill for the grinding of grain brought mainly from the Red River settlement (Manitoba) and England.

On Rossdale Flats, about 30 ac (12.14 ha) of barley, potatoes and vegetables were cultivated to help support the fort. In 1855, 1,600 bu (581.92 hl) of potatoes were harvested (McMicking: 1966, p. 3). Governor Simpson remarked of the farm in 1841:

> "The pasturage was most luxuriant and a large dairy was maintained...Sheep could not be kept, for in addition to the severity of the climate, the packs of dogs and wolves in the neighbourhood would have destroyed them. Barley yielded a fair return; but wheat was almost sure to be destroyed by the early frosts. The garden produced potatoes, turnips and a few other hardy vegetables..."
> (Roe: 1964, p. 14)

The fort itself, as with its predecessors, was of wood construction. The Palliser-Hector report described the stockade as an "irregular hexagon." The irregular shape was designed to conform with the terrain and "to keep the palisade, where faced to the north-west, a safe distance from the nearby dominant hillside" (MacDonald: 1959, p. 52). The stockade at this section was raised to a height of 25 ft (7.62 m). The main gate faced south-west, with an additional cattle gate facing south-east.

In Katherine Hughes' biography of Father Lacombe is a description of the fort which corresponds to the Vavasour Plan of 1846:

> "The palisade, twenty feet in height, was of stout trees split in halves and driven into the ground-the whole strengthened by binding timbers. Around this, compassing the entire fort, the sentinels' gallery ran, and at the four corners the peaked roofs of bastions arose, with the iron mouths of cannons filling the port-holes.
>
> "Massive riveted gates to which the steward alone held the keys gave entrance on each side to the courtyard which Palliser [1857] estimated as 300 feet long by 210 wide. In the middle of the palisaded enclosure the Big House stood, and on the grassy plot in front of it two small brass cannons mounted guard. This official residence of the Chief Factor was a massive building of squared timber, about 70 feet deep and 60 wide, three storeys high and with a gallery opening from the second storey in front and rear.
>
> "From this front gallery a high stairway led down to the grassy courtyard, about which the Bachelor's Hall or Gentlemen's quarters, the Indian Hall, the men's quarters and the warehouses were ranged."
>
> (Hughes: 1852, pp. 46-47)

Hughes continues to describe the resident population in 1852 as "close to 150."

The features that characterize this early phase of human occupance in the North Saskatchewan River Valley were the location of buildings on the river flats where construction and access to the river for water and transportation were relatively easy. Wood for construction could be conveniently floated downstream if not locally available. Agriculture was also possible on the alluvial soils of the flats.

Early Settlement

The merging of the North West Company with the Hudson's Bay

Company in 1821 resulted in a great reduction of the working force. Many ex-employees of the North West Company in the Saskatchewan district remained to form agricultural settlements such as those of Lac St. Anne and Lac La Biche, west and north-east of Edmonton. As time went by ex-Hudson's Bay Company employees settled down to farm in the vicinity. However, there is no record of their settlement in the study area.

In addition, there were certain factors that tended to reduce settlement in the whole Edmonton area. In 1846, the Columbia region was ceded to the United States. This action, combined with the development of trade around Cape Horn to the Pacific coast, severely diminished Edmonton's role as the main transfer point on a trans-continental trade route.

The extension of the railway westward in the late 1850's and 1860's resulted in St. Paul becoming the primary Hudson's Bay Company supply post instead of York Factory. Fort Garry took the place of Norway House and land transportation replaced that of water. The cart trail from Fort Garry only reached as far up the North Saskatchewan River as Carlton House, thereby short-circuiting Edmonton and reducing its status to that of a distant outpost.

In addition, steamboat navigation up the Missouri River enabled Fort Benton in Montana to successfully draw trade away from the northern Alberta posts. The trade monopoly held by the Hudson's Bay Company was slowly coming to an end.

During these developments, gold was discovered in the Cariboo in 1861. Many adventurers travelling from the east found that Edmonton lay on the most direct route to the gold fields. These

'overlanders' passing through, in 1862, noted the suitability of the river valley for settlement. McMicking writes in 1862 of the Edmonton House farm on Rossdale flats:

> "...wheat had been grown in the same field year after year in succession for a period of about thirty years, and that, too, without the application of a particle of manure. The field was under the same crop again this year; it was just headed out when we were there (July 21-25, 1862) and promised a fair yield, although it was considerably injured by the drought that prevailed here in the early part of the season, as well as by recent floods."
>
> (McMicking: 1966, p. 3)

McMicking also mentions the outcrops of coal to be found along the river banks and deposits of gold in the river bars.

Miners returning from the Cariboo remained in Edmonton to work the gold along the river's gravel bars. The Edmonton Bulletin of 1881, reported that gold was first mined in 1863 and that the activity increased "until 1868 when there were fifty men at work" (Edmonton Bulletin: Feb. 1881). As the richest spots were worked out, the miners began to drift away. Some, however, remained to take up farming and some, to the consternation of the Hudson's Bay Company, established themselves as free traders. Oliver (1930) commented:

> "The importance of the gold rush to Edmonton was not in the amount of metal actually produced or in the numbers that were permanently added to the population, as much as the fact that it brought in a distinctive and entirely modern element, with a background and outlook radically different from that of any other of the original settlements in the Canadian West."
>
> (Oliver: 1930, p. 91)

Settlement in the 1870's

The Hudson's Bay Company's rule ended in 1869 when 'Rupert's Land' was transferred to the Canadian Government. The following year, the company surveyed its reserve in Edmonton.[6] This survey set the stage for the many private claims to follow.

During the 1870's, a handful of persons chose to establish themselves in the river valley. One of the first was Dr. George Verey, Edmonton's first resident physician, who built a house and operated a small farm on Victoria Park Flats near the western boundary of the Hudson's Bay reserve from 1872 until his death in 1881. No trace of these activities now remains. Dr. Verey also taught children of Hudson's Bay Company employees in a school house located on Rossdale flats.

Donald Ross, after whom Rossdale is named, carried on several activities there during the 1870's. The most important commenced with the construction of the Donald Ross or Edmonton Hotel in 1876, the first commercial hotel west of Portage La Prairie. This profitable enterprise was initiated to accommodate persons arriving in the Edmonton area, especially those arriving by steamboat. The hotel was located just below McDougall Hill. Ross also had the distinction of operating the first market garden in Edmonton near the hotel.

On the opposite side of the river on Walterdale flats, John Walter constructed his first house in 1875. The log house was located close to the river bank and near the eastern boundary of River Lot 9. This was the only building in Walterdale for at least four years and was used for a variety of purposes such as a residence,

general store, ferry office, telegraph office and stopping place for travellers.

Walter became involved in a lucrative lumber business on the flat supplying hewn logs for construction purposes in the growing hamlet. Logs were cut upstream and floated down-river to be caught in booms. Other lumber-related activities included the manufacturing of buckboards and carriages and the building of York boats for the Hudson's Bay Company.

By Mill Creek on Cloverdale flats (then known as Gallagher Flats), William Bird operated a water-powered grist mill from 1878 to 1881. Its short-lived operation was a result of there being not enough water in the creek when it was most needed. Bird also operated a homestead on the northern half of River Lot 19. No trace of his buildings now remains.

In addition to the limited nucleus of settlement created by such individuals as Dr. Verey, Donald Ross, John Walter and William Bird, were the Indian encampments intermittently located on Victoria Park Flats below present day 116 Street. Indian activity had been carried on here since the fur trading posts located in the study area. An Indian graveyard, also used for Hudson's Bay Company employees until their removal to the Methodist Mission Cemetery in 1880, was located on Rossdale flats approximately under the present traffic circle at the north end of the Walterdale bridge. The Indian portion of the yard contained about 200 graves.

Other impermanent settlement features consisted of the miners' and squatters' shacks stretched out along the banks of the river valley. No trace of their transient activities remains.

Settlement in the 1880's (Fig. 7)

By 1880, the certainty that a transcontinental railroad would soon arrive at Edmonton attracted numerous settlers to the area. Even later, when the Canadian Pacific Railway abondoned the Yellowhead Pass route in favour of the more southerly Kicking Horse Pass, settlers continued to trickle in. The resultant speculation in land has become known as the boom of 1881-1882. The Edmonton Bulletin reported of the boom:

> "The people of this place were affected in a much less degree by the speculation in the land of their own town than many others thousands of miles off. They were in the outside circles of the great whirlpool of which Winnipeg was the vortex and were only affected either for good or ill, in a degree proportionate to their distance. No one made very much and no one lost a great deal, but on the whole the boom left a good deal of money in the place that would not otherwise have been brought in, and this had a good effect upon legitimate business."
>
> (Edmonton Bulletin: Nov. 11, 1882)

Land claimed by original settlers in the 1870's had been laid out and maintained by neighbourly agreement due to the lack of a legal survey. The new settlers were soon in conflict with the old over squatting and claim jumping. This unstable situation was brought to an end, when in the summer of 1882, the Edmonton Settlement was surveyed by M. Deane, director of Dominion surveys. Forty-five river lots were surveyed (Fig. 8). Although the base line was drawn parallel to the river, deviation of the boundaries occurred to comply with improvements that had been made by the earlier claimants.

The legalization of claims and the growing population of the Edmonton hamlet spurred the growth of settlement in the North

FIGURE 7

SETTLEMENT IN THE 1880'S

GENERALIZED MAP

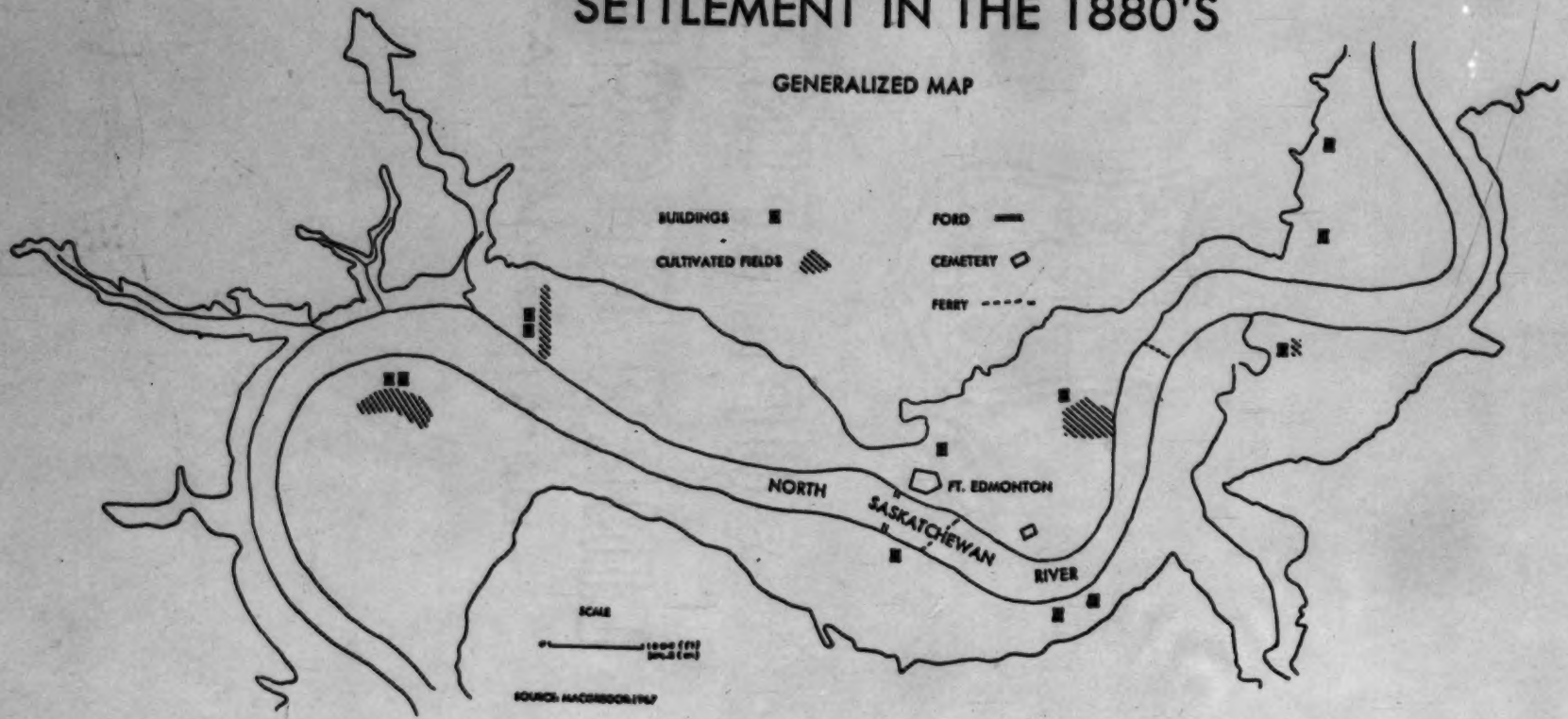
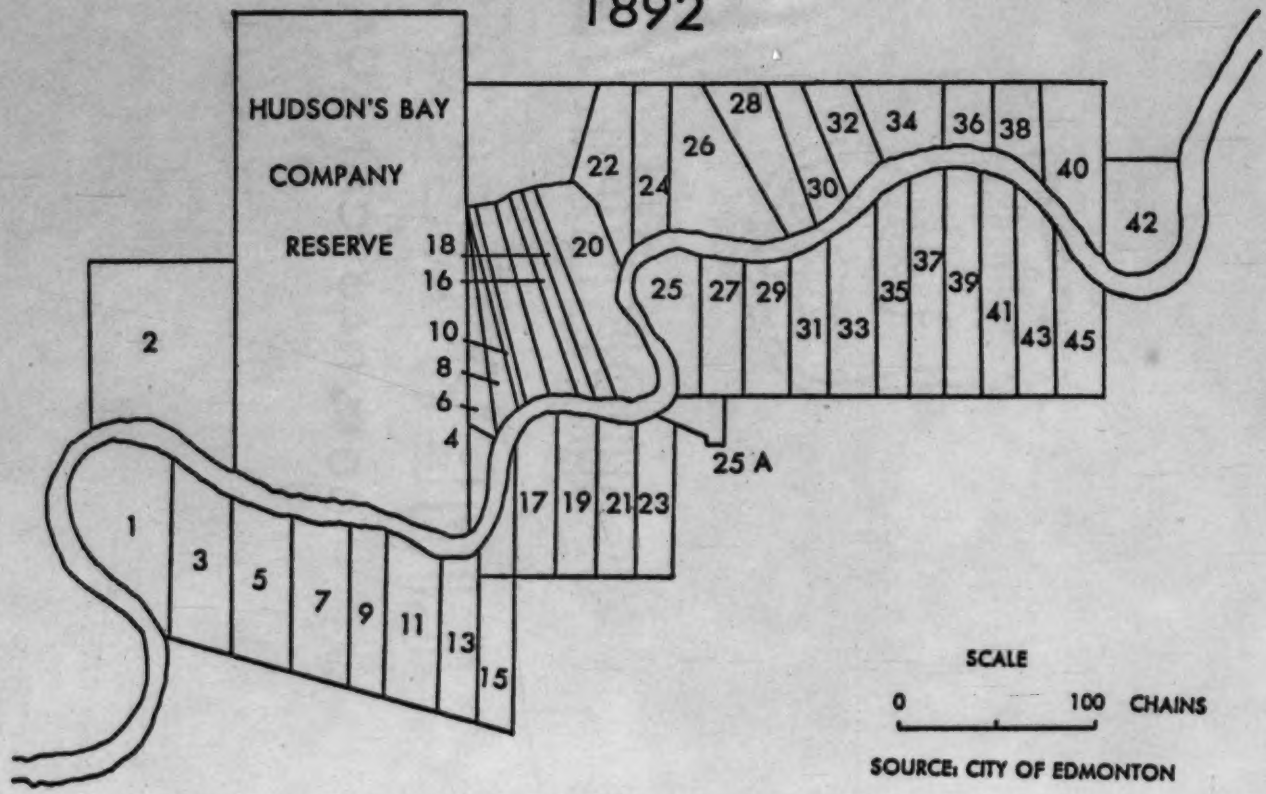


FIGURE 8

THE RIVER LOT SURVEY

1892



SOURCE: CITY OF EDMONTON

Saskatchewan River Valley study area. This took the form of industrial rather than residential development.

In Walterdale, John Walter expanded his carpentry business and, in 1886, established a smithy to complement his work in carriage and boat building. In 1882, Walter had put into service a rope ferry in response to the growing demand of cross-river traffic. The ferry ran from a point close to Walter's first house to the opposite bank of Rossdale Flats. This 'upper ferry' was replaced by a cable ferry in later years and run in conjunction with a second 'lower ferry,' located near the present Low Level Bridge. For over two decades, Walter's ferries were the only means of crossing the river other than fording it (Plate 1).

Walter constructed his second house in 1883 of similar construction to the first. The second house was originally built overlooking the first ferry landing 100 ft (30.48 m) east of the first house and was associated with a stable, a granary and a 'Bachelor's Hall' which had been moved from the fort. The second house was moved to its present site in 1907 (Plate 2).

During the 1880's, Walter also was engaged in supplying hay and potatoes to the North West Mounted Police. It is not evident, however, whether this produce was grown in Walterdale or procured from other farms.

Two sawmills and grist mills existed in the study area. The Hudson's Bay Company's engine-powered Sawmill and Grist Mill was located on the east end of Victoria Park Flats, below Fort Edmonton and operated from 1879 until destroyed by fire in 1885. The Edmonton Bulletin commented that the grist mill's purpose would be

Plate 1: The Ferry-Walterdale

Plate 2: John Walter's Second House-Walterdale

to grind grain for the public, "but will be run principally to supply flour to the H.B.C. posts in the Peace River and northern districts as far as the Arctic Ocean" (Edmonton Bulletin: Mar. 28, 1881).

The second sawmill was located in Riverdale having been established in the early 1880's by Norris, McLeod and Belcher. D.R. Fraser and R. Hardisty purchased the mill and added a grist mill to grind grain for the Edmonton area. The business operated until 1886 when Fraser moved to Athabasca Landing retaining only a retail outlet in Edmonton. In 1890, the retail outlet closed. None of the original buildings remain on the site.

The river valley location was necessary to the sawmills as they required an easily accessible and reliable water supply. The river also provided the route by which logs could be floated downstream and the mode of transport by which grain, flour and lumber could be distributed to customers downstream by barge or steamboat.

J. Thurston and W. Humberstone operated a brick yard beside Fraser's mill in Riverdale from 1880 until 1918. Their's was the first enterprise to make use of the clay-rich alluvial deposits of the flats. Bricks now competed with lumber as the construction material for many buildings in Edmonton. The Edmonton Bulletin of 1886, reported the "St. Albert Mission buildings being fitted with brick chimneys from Humberstone's yard" (Edmonton Bulletin: Aug. 21, 1886). None of the original buildings remain. Part of the area is now occupied by Al's Auto Parts (Plate 3).

Two additional industries related to the extraction of the study area's mineral resources were gold and coal mining. The former was restricted to the gravel bars of the river, itself. Gold had

Plate 3: Al's Auto Parts-Riverdale

been hand-worked since the 1860's. However, during the 1880's several attempts were made to utilize steam engines to raise the gold-bearing gravels from the river bed. A successful operation was that of the Saskatchewan Gold Mining and Dredging Company. Commencing in 1885, this company worked the river bed throughout the study area using dredging scows and steam vacuum pumps to suck up the gravel and sand. The problem of separating the gold from the gravel and sand, however, was troublesome.

Coal mining in the study area was of special importance to Edmonton. Many people up to 1874 were taking coal from the river bank for their own use. The blacksmith of Fort Edmonton used coal in his forge, making the fort an important metal-working centre. Commercial coal mining began between 1875 and 1880 (Hamilton: 1971, p. 37). Hamilton (1971) has discussed the Edmonton coal mining industry prior to 1892. The early mining operations were fairly crude and primarily a winter time activity. Nevertheless, the small industry had a sizeable market. Coal was used for heating and cooking and the Edmonton Milling Company, for example, used coal for fuel during the winter as it was much cheaper than burning wood.[7]

Agricultural activities were also carried on along the flats of the study area during the 1880's, although there are few references to describe the area under cultivation. It is fairly safe to say that acreages would be small. Grains such as barley and oats, potatoes and other vegetables would have been grown.

Mention has already been made of John Walter's trade in hay and potatoes to the North West Mounted Police. In addition land under cultivation was to be found on Mayfair Park Flats, Rossdale, Riverdale

and Cloverdale flats. The Edmonton Bulletin of 1886, includes a remark to the effect that "The oats in the field at Fraser and Co.'s Mill was being cut on Thursday" (Edmonton Bulletin: July 17, 1886).

Transportation

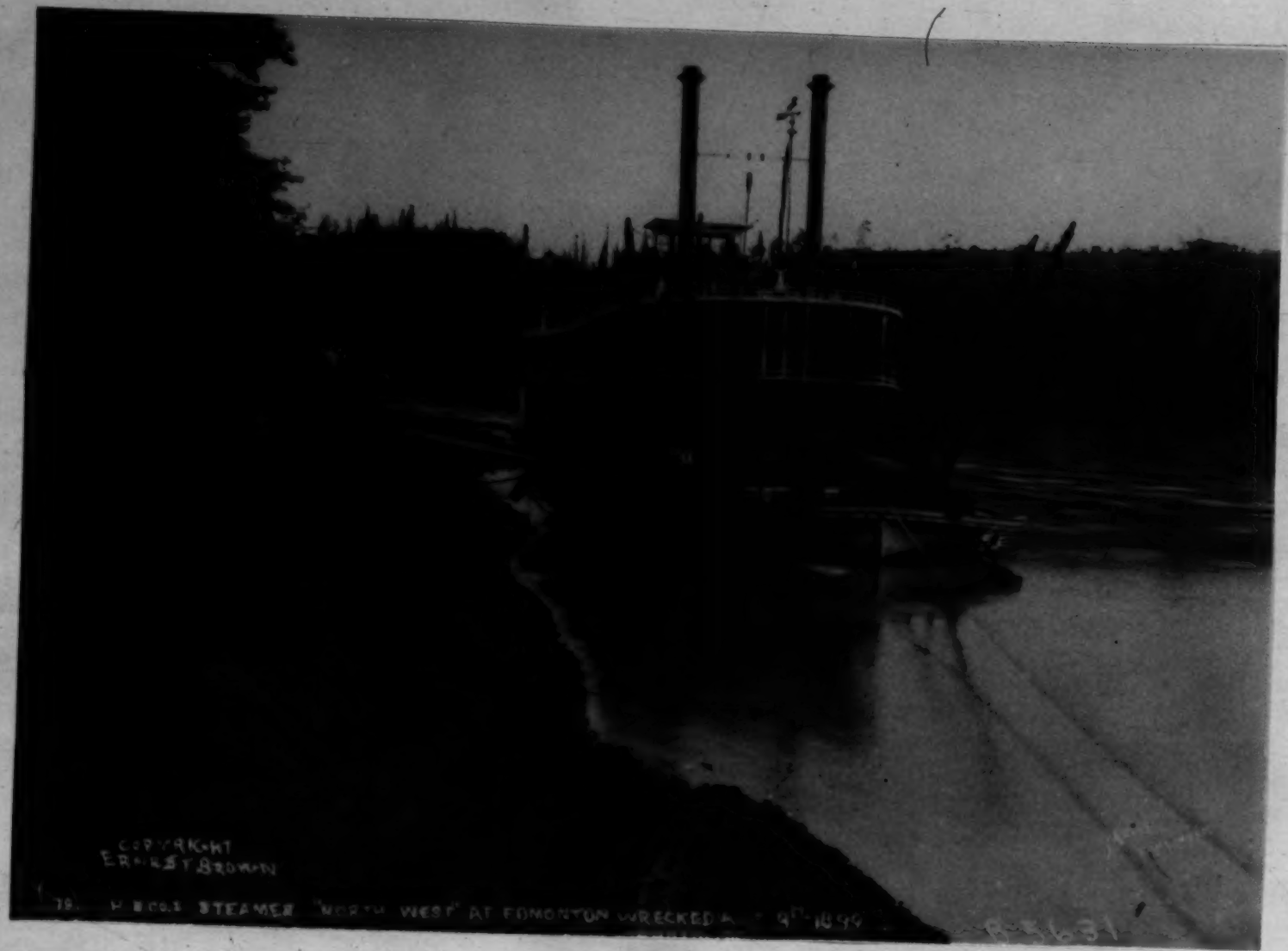
The North Saskatchewan River had been an important transportation medium since the Cree travelled along its length by canoe to trade their furs at the Hudson's Bay Company forts commencing in the seventeenth century. The rival fur trading companies also used canoes (although of a larger size) to transport their furs and trade goods. According to Devore (1963), however, true navigation on the North Saskatchewan River began with the use of the Hudson's Bay Company York boats. The York boat, dating back to 1779, was the main form of long distance river transportation for one hundred years until superceded by the steamboat.[8]

The steamboat era arose out of the Hudson's Bay Company's reorganization of the transportation system in the Northwest. Improved water transport was essential to counteract the high cost of transport to and from Edmonton via the land route based on Fort Garry.[9]

The first steamboat to reach Edmonton was the Northcote in 1874. The Lily reached Edmonton in 1879. These boats, 150 ft (45.72 m) and 100 ft (30.48 m) long respectively, were of necessarily shallow draft--22 in (55.9 cm) and 14 in (35.6 cm) respectively. The most successful steamer was the Northwest, built in 1881, 200 ft (60.96 m) long with a draft of 18 in (45.7 cm) (Plate 4).

However, many obstacles had to be overcome by the steamboats

Plate 4: The Steamboat-Northwest at Edmonton, 1896
(Provincial Archives of Alberta, E. Brown Collection)



78. H.B.C.S. STEAMER "NORTH WEST" AT EDMONTON WRECKED A[illegible] 9TH 1899

R-B631

such as rapids, boulders, sandbars, shifting channels and low summer water levels. The Hudson's Bay Company had been urging river improvement by the government since 1879. Work did not begin, however, until 1883 when under the direction of A.E. Burbank, the main channel through the Edmonton area was cleared of obstacles. Improvements were carried out each summer until 1888 or 1889. While this action helped keep the channel clear for navigation, other natural, economic and political factors reduced the steamboat service, so that in 1888, only the Northwest was still in operation.

The steamboat activity of the 1870's and 1880's resulted in the building of two steamboat landings in the study area. One was located on the north bank at Rossdale and the other on the south bank near John Walter's lumber yard.

Other aspects of river transportation in the study area included Walter's ferry, the rafting and loose driving of logs to the sawmills, the dredging scows, mining scows and flat-boats for the transport of goods to settlements downstream.

The Edmonton Bulletin of 1885 describes two flatboats of 14 by 24 ft (4.27 by 7.32 m) built at Hardisty and Fraser's Mill "for West and Smith to run potatoes to Battleford."

Land transportation within the study area prior to 1890 consisted of beaten earth trails along the flats and up the valley walls to connect with other trails leading to St. Albert, Stony Plain, Fort Saskatchewan and Calgary. Roads up the valley walls were generally steep and narrow. In May of 1884, the grade up the southside hill on J. MacDonald's property became impassable due to wet weather. John Walter had to reinforce the road to remedy further inconvenience.

Similarly, the road on the hill behind the Hudson's Bay Company Sawmill had to be stabilized in June 1884, by placing a wall of slabs on the lower side to prevent teams from slipping over the bank. Land transport in the study area was only assured in dry summer weather or during the cold of winter.

Conclusion

The North Saskatchewan River Valley study area prior to 1880 was acquiring those settlement features that would tend to attract further settlement. The fur trading posts of the Hudson's Bay and Northwest Companies did little to attract settlers to the area until after their amalgamation. The permanent establishment of Fort Edmonton at the present Legislative site drew that element of the population with the entrepreneurial characteristics to establish settlement and industry in the study area. The surveying of the Hudson's Bay Company property in 1870 established the boundaries around which settlement could proceed.

Settlement was related closely to the topography, physical resources and the demand of the growing Edmonton hamlet. By 1890, the study area boasted a handful of residences, two saw and grist mills, a brick yard, a hotel, a carriage building shop and boat yard, several commercial coal mines, gold dredging scows, patches of agricultural land and steamboat service. All that appeared to be needed was a railway to end the area's relative isolation.

Chapter III Footnotes

1 The old forts had been burned down by Indians.

2 In addition, the more northerly location of the White Earth site proved disadvantageous for agriculture.

3 Cited in MacDonald: 1959, p. 28.

4 To conform with the literature, 'Fort Edmonton' is used instead of Edmonton House.

5 This location was permanently deserted during the Riel Rebellion of 1885.

6 The Hudson's Bay Company consisted of approximately 3,000 ac (1214.1 ha). Its boundaries were 101 Street on the east, 121 Street on the west, the North Saskatchewan River on the south and Kingsway/Princess Elizabeth Avenue on the north.

7 The Edmonton Milling Company milled grain.

8 The York boat was built of spruce, the largest size being 40 ft (12.19 m) long and 10 ft (3.05 m) wide. The boats were manned by eight men and could carry up to one hundred pieces of baggage weighing 90 lb (40.82 kg) each. The men pulled on oars 20 ft (6.10 m) long. A sail was carried for favourable winds.

9 Edmonton is a short distance below the head of navigation for the North Saskatchewan River.

Chapter IV

Settlement Morphology 1891-1915

Introduction

In the decade prior to 1891, Edmonton strove to end its long period of isolation from the outside world. On January 18, 1880, the telegraph was extended to the town from Hay Lake (just south east of Edmonton) in response to repeated petitions by the residents. Quick communication with the outside world was thus established. As a consequence, later that year, under the direction of Frank Oliver, a printing press was brought from Winnipeg by ox-cart for the purpose of founding a local newspaper. The Edmonton Bulletin, as it was called, became the first weekly newspaper in the Northwest Territories between Portage la Prairie and the Rocky Mountains. Ockley has commented on 'The Bulletin's' importance to the settlement of Edmonton:

> "In its initial stages, the early '80's, The Bulletin numbered among its subscribers many people in all parts of Canada. It can justly claim the credit of being largely instrumental in bringing the Edmonton settlement and the surrounding country to the attention of the outside world in a way that nothing else could have done. Since 1880, the history of Edmonton and neighbouring settlements can be found in the columns of "The Bulletin"."
> (Ockley: 1932, pp. 148-149)

The residents of Edmonton also petitioned for better, more reliable postal service. In the early 1880's, delivery of mail along the North Saskatchewan was contracted to private individuals who often, in turn, sublet their routes to others. This system generally

resulted in a great deal of confusion and uncertainty. Commencing in the summer of 1883, mail was transferred weekly from Calgary to Edmonton by two overland stage lines: the Royal Mail Passenger Express and the Edmonton Calgary Stage. Faster postal service was not established until the railway reached Edmonton in 1891.

An adequate postal service, in addition to the telegraph and newspaper ensured correspondence with other parts of Canada and the world. Personal and business letters, for example, spoke of Edmonton further drawing attention to the small town. Many settlers arrived in Edmonton armed with information received in a letter from a friend or relative already a resident or having just passed through the town.

Mode of transport was, however, most critical in ending Edmonton's isolation. Travel between Edmonton and the East offered two routes, both commencing at Winnipeg: a long and tedious land route by ox-cart or an equally tedious water route along Lake Winnipeg and the North Saskatchewan River by steamer. With the arrival of the railroad still pending, Frank Oliver chose to support the water route:

> "A good line of boats on the Saskatchewan would do nearly as much to open up the country as the railroad itself and would for all time to come offer strong competition to the railroad especially on eastern bound freight. An advantage that a line of boats would have on the Saskatchewan is that full loads of coal and lumber could be had for every return trip; in fact that is what is principally needed for the development of these two industries.
>
> "When the Lake Winnipeg and Hudson's Bay Railway is completed, as it will be ultimately, it in connection with the navigation of the Saskatchewan will form the shortest and most natural outlet for the surplus produce of this country on the

> way to the English market putting Edmonton on nearly as good a footing for the shipping of grain as St. Paul is now...The Saskatchewan is considered by some not to be fit for navigation but it must be very bad indeed if it is not better than slow going oxen on a muddy road one thousand miles long."
> (Edmonton Bulletin: Nov. 5th, 1881)

The arrival of the railroad in 1891, however, marked the end of river transport and Edmonton's isolation. The fact that the Calgary and Edmonton Railway was extended only to the south bank of the river, did not hinder the flow of prospective settlers to Edmonton. Anxiety suffered by Edmonton's residents as a result of the establishment of the speculative town of Strathcona on the south side proved to be unfounded, as can be gathered from the following discussion.

Settlement Morphology 1891-1915 (Fig. 9)

The important settlement features of the study area for the period 1891-1915 will be considered under selected dominant categories of land use.

Residential Land Use

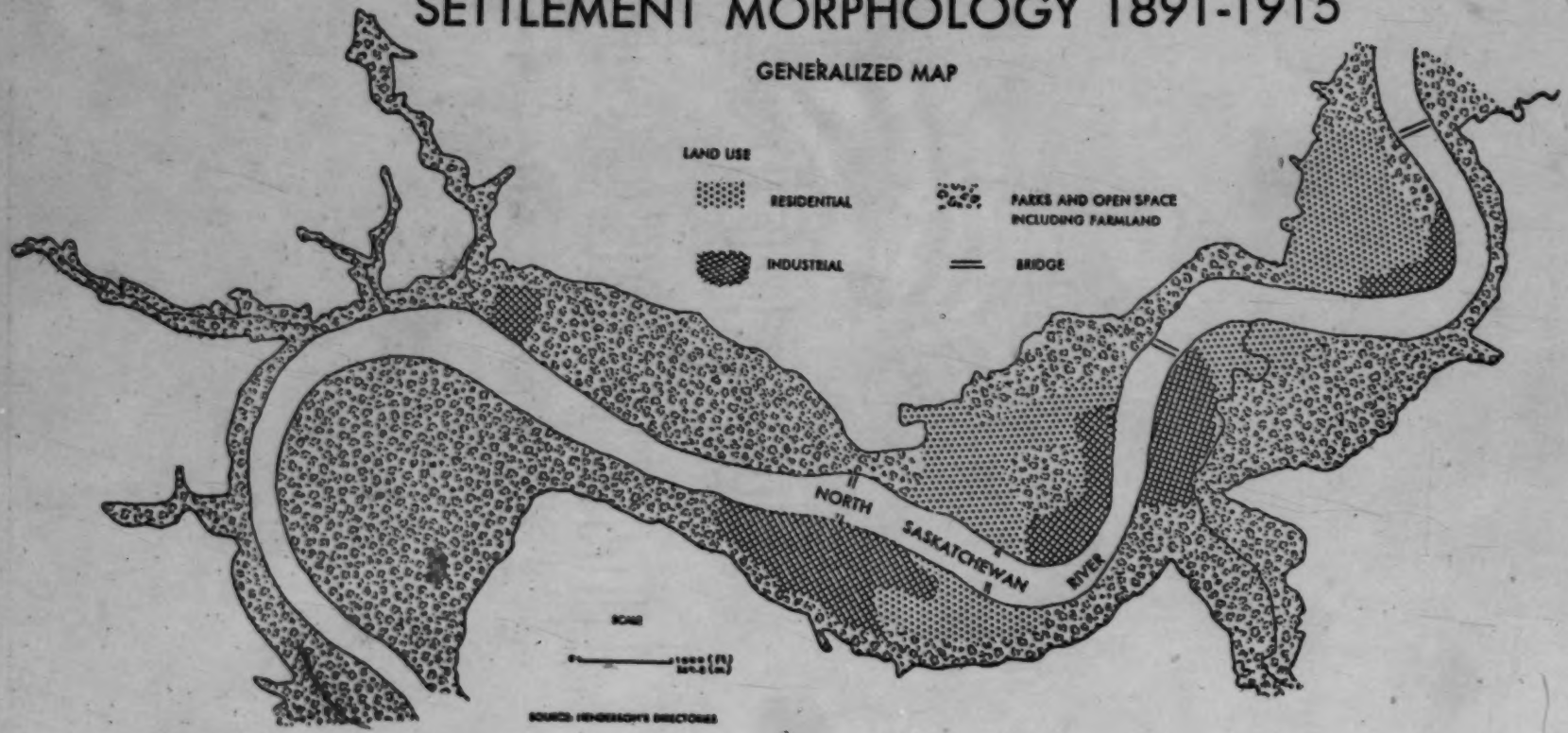
Prior to 1900, the population of the study area was low. The 1899 population figures for the river flats show a combined total of only 300 (Day: 1974, p. 106). The Edmonton Bulletin of August 1899 tends to substantiate this low figure.

> "On these flats the electric light station, some of the mills and other enterprises which require a large amount of water are situated, but very few dwellings and no stores."
> (Edmonton Bulletin: August 21, 1899)

FIGURE 9

SETTLEMENT MORPHOLOGY 1891-1915

GENERALIZED MAP



The study area population increased substantially from 1899 until 1915. At that time the combination of the 1915 flood and the onset of a depression associated with World War One contributed to a sharp population decline. The total number of persons in 1914 was 3,395. By 1915 this figure had dropped to 2,555. The total population figures for Edmonton and Strathcona also show a similar pattern, declining from 72,516 in 1914 to 59,339 in 1915 (Day: 1974, p. 106) (for population data, see Appendix 1 and 2).

Rossdale in 1911 had the greatest number of residential buildings, totalling 251 with 18 vacancies.[1] Riverdale also showed a large total of 181 with 37 vacancies. Walterdale and Cloverdale showed only 41 residential buildings each with very few vacancies.[2]

Dwellings in the study area were of frame or brick construction. The majority, however, were of frame. Some, for example, in Walterdale were constructed of logs. Materials were generally obtained from the local saw mills and consisted mainly of spruce, with some poplar and birch. Bricks from the local brick yards were used for the foundation work.

The largest frame house in the study area was that owned by John Walter in Walterdale. Walter's third house[3] constructed in approximately 1899 has been exhaustively described by Day (1974). The third house was built on the highest part of Walterdale flat and still stands on its original site (Plate 5). It was constructed from lumber: spruce, poplar and birch. Some imported cedar was also used. The foundations were laid with brick from Pollard's Brick Yard (Walterdale). The two-storey house was, with the exception of the McDougall Residence (103 St. and 100 Ave.), the largest in

Plate 5: John Walter's Third House-Walterdale

Edmonton. Day describes the design as being distinctly American, having been built as a core to which additions could be made if necessary.

In addition, during the warm summer months, many newcomers to Edmonton were forced to live in tents due to the scarcity of housing and high rents. The Edmonton Bulletin of July 1907 reported 1,098 tents in Edmonton, housing 3,294 persons. Many of these tents were located in the study area where a water source was only a short distance away and where the land office, town centre and bridge and ferry crossings were readily accessible. The tents provided temporary accommodation while the occupants searched for permanent homes in the town or until they could locate on homesteads in the country.

Industrial Land Use

An important settlement feature of this period was the large number of industries located on the river flats. The Edmonton Bulletin of January and February 1902, in describing the towns of Edmonton and Strathcona, listed the industrial establishments, many of which were located in the study area. This is also evident in the Canadian Pacific Railway's 1910 publication of Manufacturing and Business Opportunities in Western Canada.

Especially suited to the valley location were a number of sawmills and lumber yards. Spruce, poplar and birch logs were cut in the winter as far as 90 mi (144.8 km) upstream and floated downriver to the mills in the spring. The logs were caught in wooden booms that were extended out into the river from the bank. Once hauled to the mill, the logs were sawn into rough lumber, sized

and planed and then taken to the lumber yard to be sorted and seasoned. The finished product was used in the construction of buildings, boats and carriages.

These sawmills and lumber yards required a great deal of space. The Edmonton Bulletin described that of the D.R. Fraser Co., Ltd. (Riverdale):

> "The present sawmill of the company while on the same site as the old mill, is considerably larger than that established in 1881. The mill and yards occupy a space of eleven and a half acres in extent on the flats close to the river bank." (Edmonton Bulletin: March 28, 1908)

Easily the largest mill in the study area was that run by John Walter on Walterdale flats (Plate 6). The mill regularly employed 120 to 135 men. During the winter, when the men were cutting in the woods, up to 200 men were needed. Comparison of sawmill production figures for Walter's mill and other Edmonton mills reveals the former's success (Table IV).

Brick-making was also an industry geared to the construction needs of the study area and the wider local area. John McDougall's residence (103 St. and 100 Ave.), McDougall and Secord's brick block (101 St. and Jasper Ave.), Holy Trinity Church (101 St. and 84 Ave.) and a large number of private residences were constructed of brick from the valley establishment.

The yards and plant of the brick factories usually comprised several acres of land close to the river and to an accessible clay source. The extent and complexity of this industry are illustrated by Pollard's Brick Yark (Fig. 10).

Other important study area industries included: Bedard's

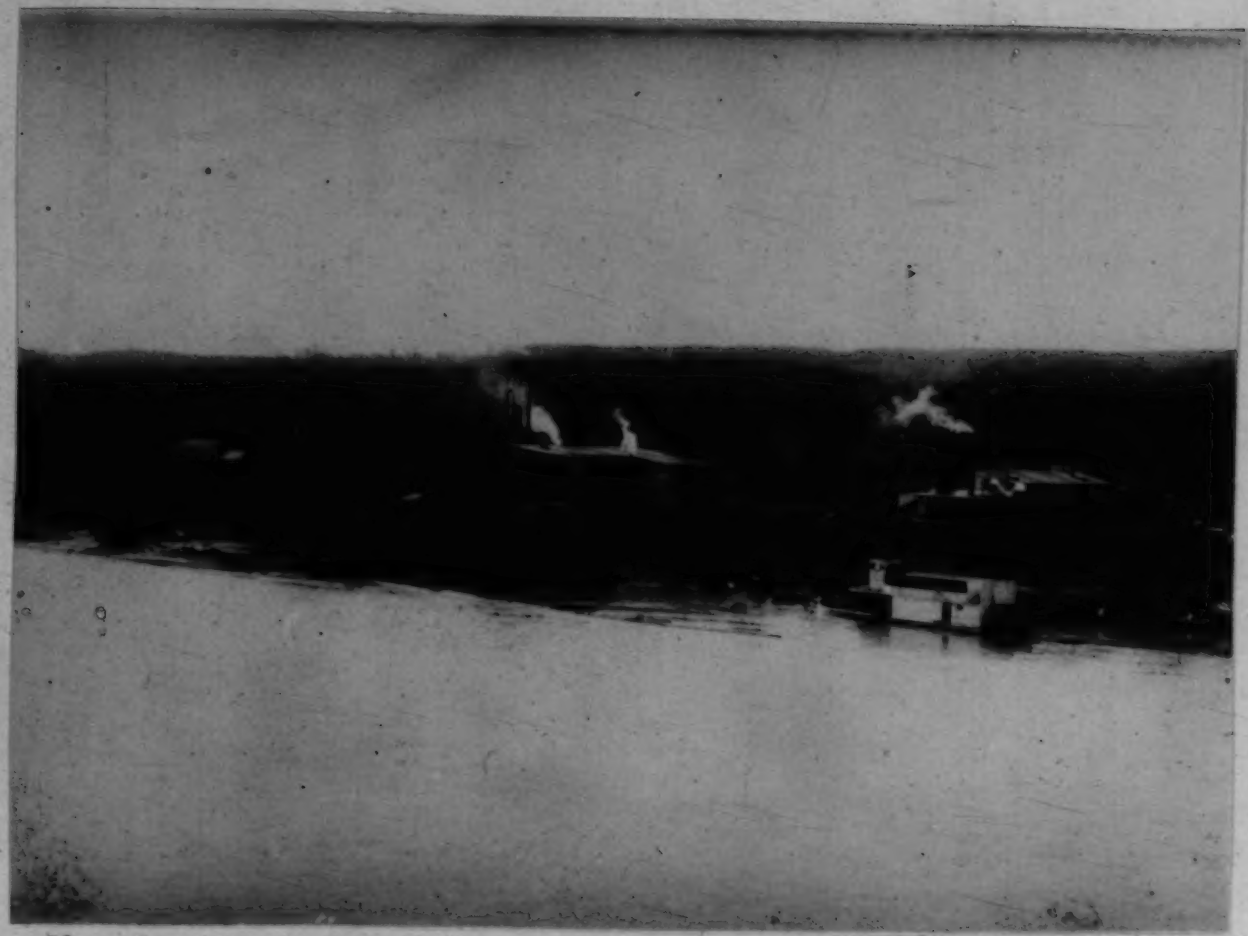


Plate 6: Walter's Sawmill (Provincial Archives of Alberta, E. Brown Collection)

TABLE IV

EDMONTON SAWMILL PRODUCTION IN BOARD FEET

1893-1915

YEAR	WALTER	OTHER EDMONTON
1893	51,680 (124,032 m^3)	1,055,129 (2,532,309.6 m^3)
1894	810,412 (1,944,988.8 m^3)	654,474 (1,570,737.6 m^3)
1895	292,590 (702,216.9 m^3)	247,590 (594,216 m^3)
1896	335,549 (805,317.6 m^3)	172,063 (412,951.2 m^3)
1897	362,661 (870,386.4 m^3)	283,056 (679,334.4 m^3)
1898	789,564 (1,894,953.6 m^3)	952,607 (2,286,256.8 m^3)
1899	1,467,173 (3,521,215.2 m^3)	1,206,765 (2,896,236 m^3)
1900	963,351 (2,312,042.4 m^3)	1,367,433 (3,281,839.2 m^3)
1901	1,830,016 (4,392,038.4 m^3)	1,297,815 (3,114,756 m^3)
1902	3,172,300 (7,613,520 m^3)	3,101,300 (7,443,120 m^3)
1903	3,317,479 (7,961,949.6 m^3)	3,352,479 (8,045,949.6 m^3)
1904	3,339,387 (8,014,528.8 m^3)	3,035,387 (7,284,928.8 m^3)
1905	3,522,529 (8,454,069.6 m^3)	2,956,852 (7,096,444.8 m^3)
1906	4,446,600 (10,671,840 m^3)	2,636,594 (6,327,825.6 m^3)

TABLE IV (cont'd)

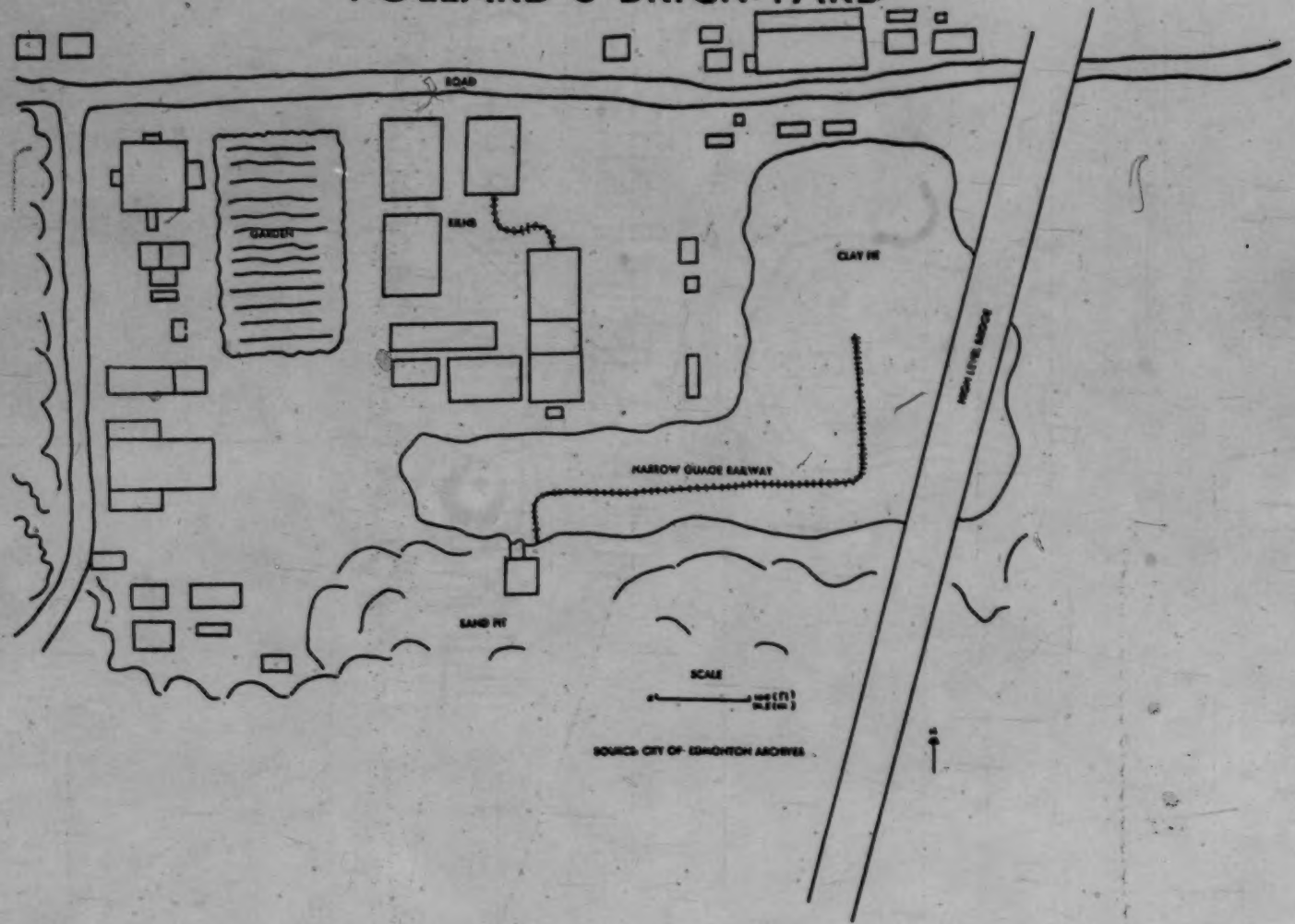
EDMONTON SAWMILL PRODUCTION IN BOARD FEET

1893-1915

YEAR	WALTER	OTHER EDMONTON
1907	6,714,379 (16,114,509.6 m^3)	4,529,111 (10,869,866.4 m^3)
1909	8,453,397 (20,288,152.8 m^3)	8,406,804 (20,176,329.6 m^3)
1911	12,978,203 (31,147,687.2 m^3)	8,510,354 (20,424,849.6 m^3)
1912	8,968,418 (21,524,203.2 m^3)	4,089,077 (9,813,784.8 m^3)
1913	6,213,265 (14,911,836 m^3)	6,863,250 (16,471,800 m^3)
1914	8,351,551 (20,043,722.4 m^3)	7,134,890 (17,123,736 m^3)
1915	---	---

(Source: Day: 1974, p. 90)

FIGURE 10
POLLARD'S BRICK YARD



Tannery and the Strathcona Brewing and Malting Company in Walterdale; Little's Brick Yard in Riverdale (Plate 7); the Campbell and Ottewell Mill, the Edmonton Brewing and Malting Company (Plate 8) and the Edmonton Ice Company (later the Arctic Ice Company) in Rossdale; and Anderson's Brick Yard, the Edmonton Lumber Company, the Gallagher-Hull Meat and Packing and the Edmonton City Dairy of Cloverdale.

The towns of Edmonton and Strathcona were also serviced by power plants and water systems.[4] Edmonton was provided with electricity by a private company, the Edmonton Electric Light Company, from 1892 until the city bought the system in 1904. The small plant was constructed in 1891 near the river's edge in Rossdale (Plate 9). When it became apparent that this plant would not be able to accommodate the growing population, a new installation was built on the present site in 1905.[5] (Subsequent plans to modernize were post-poned due to the outbreak of World War One.) The new plant burned small-size coal, which was considered a waste product in the early coal mining days (Plate 10). Strathcona also had a small power station located adjacent to what is now Queen Elizabeth Park.

A waterworks and sewer system were established in 1903. Prior to this date, water was hauled by horse and wagon up the valley wall to the town. The Strathcona pumping station located on the south bank was discontinued shortly after amalgamation (1912), with Edmonton supplying all the requirements of the south side.

Coal and gold mining were still profitable enterprises in the study area. Many new coal mines were developed in the period 1891 to 1915 primarily for commercial and industrial requirements. Several were opened in response to a limited export market in the

Plate 7: Little's Brick Yard-Riverdale, 1976

Plate 8: Edmonton Brewing and Malting Company-Rossdale, 1907
(Provincial Archives of Alberta, E. Brown Collection)

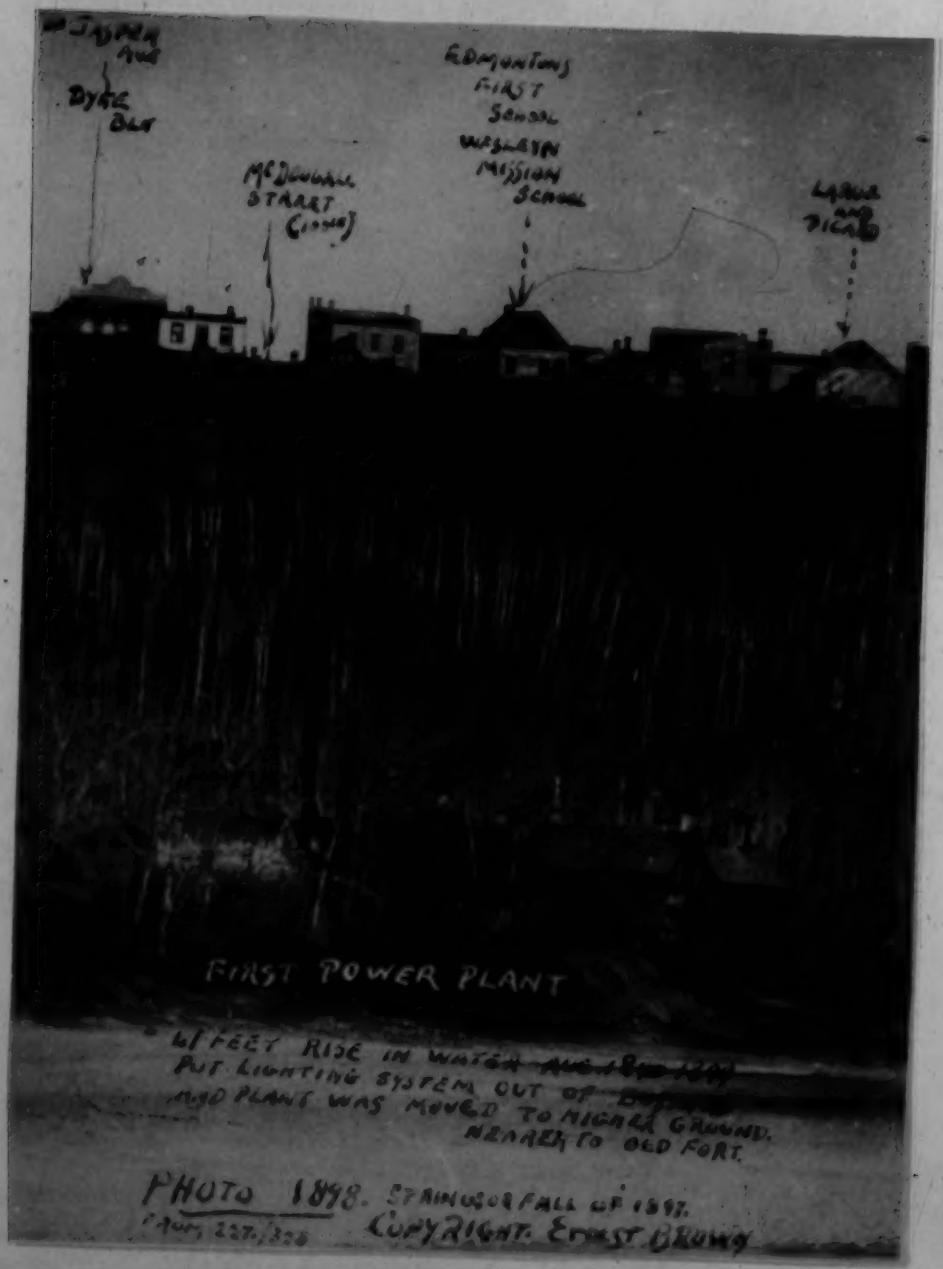


Plate 9: Old Generating Station, 1898 Location (Provincial Archives of Alberta, E. Brown Collection)

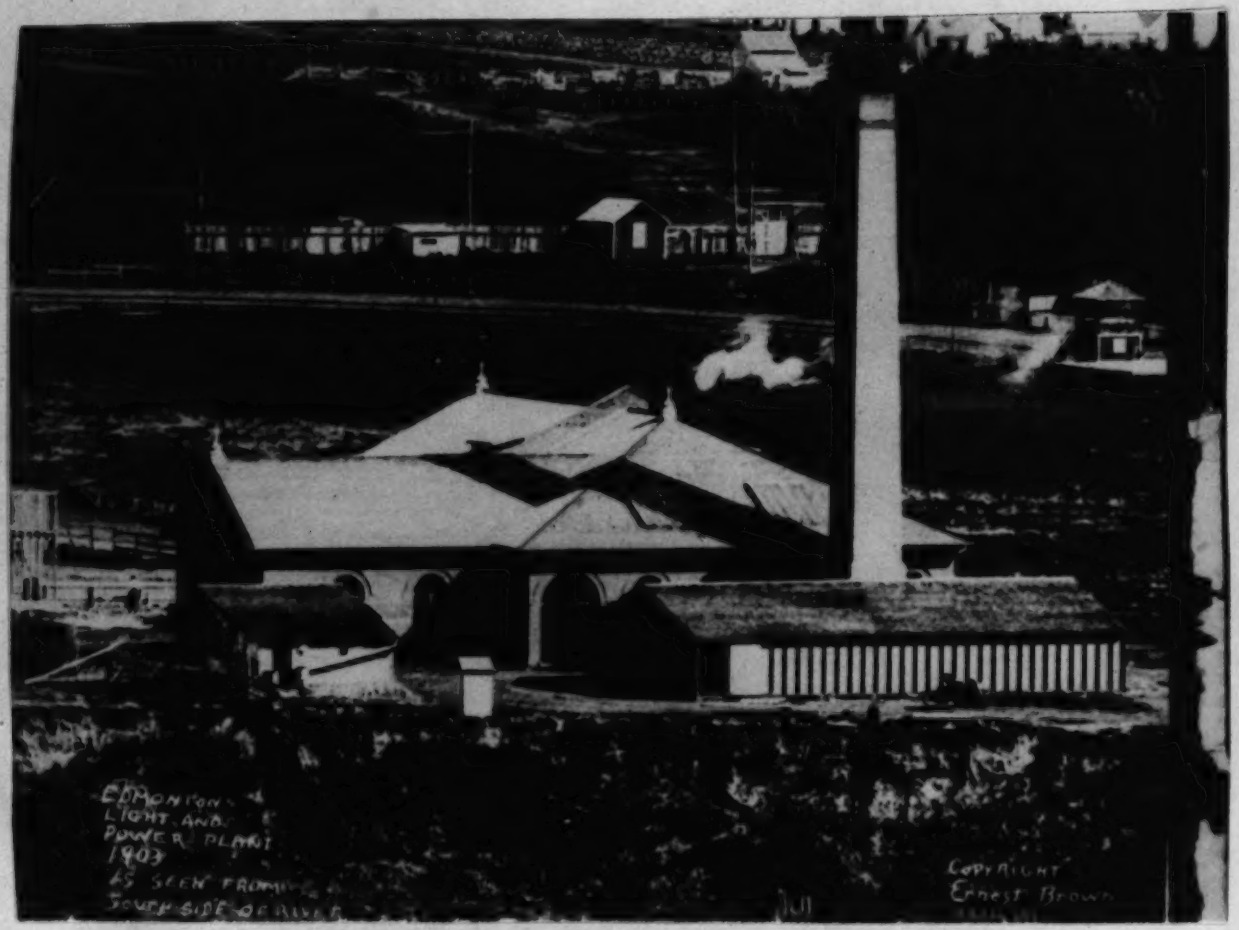


Plate 10: Generating Station, Present Location, 1903 (Provincial Archives of Alberta, E. Brown Collection)

Prairies as well as to the growing demand in Edmonton. In addition, many old mines were worked more intensively. Local mines supplied domestic heating and cooking requirements, schools, fire halls, the Edmonton Light Company and the General Hospital. Coal was also supplied to the section houses along the Calgary and Edmonton Railway (although not used as locomotive fuel). Other towns supplied included Innisfail, Lacombe and Wetaskiwin (Hamilton: 1972, pp. 61-66).

Many of the local industries used coal as fuel. The Edmonton generating station's use of slack has already been noted. Anderson's Brick Yard used coal mined on their property to fire the plant's boilers (Edmonton Bulletin: October 10, 1902). Similarly, a nearby coal seam furnished fuel for the engines of Little's Brick Yard (Edmonton Bulletin: June 27, 1902).

Gold was still being mined by industrial panning and by means of the 'grizzly' during this period.[6] In 1895, for example, 300 miners were occupied in this manner (Dorsey: 1975). Of more significance, however, were the steam-powered dredging machines that scoured the river gravels throughout the study area. These machines had come into existence during the 1880's. By 1899, the Alberta Plaindealer was able to record five gold mining interests in Strathcona alone: The Star Mining Company Ltd., The Loveland Mining Company, Deachman Mining and Trading Company Ltd., Hogne's Mining Company and Roughedge's Gold Extraction Works (Alberta Plaindealer: January 6, 1899). Dredges belonging to some of these companies continued to mine the North Saskatchewan River until the 1930's (Plate 11).

The dredges operated during the ice-free season, being able to raise gravel from a depth of approximately 10 ft (3.05 m). The

Plate 11: Huff's Gravel Dredge, 1907 (Provincial Archives of Alberta, E. Brown Collection)

Edmonton Bulletin of 1885 described a typical dredge of the times. It was 80 ft by 20 ft (24.38 by 6.10 m) in dimensions drawing 10 in (25.4 cm) of water in the centre and 2 in (5.1 cm) at each end. Basically, the machine comprised an 80 hp (81.12 hp) boiler and two vacuum pumps, one to loosen the gravel and one to raise it. A large grizzly, similar to those used by individual miners, separated the gold from the gravel. Three or four men were needed to operate each dredge which on the average produced $25 to $40 worth of gold per day.

Institutional Land Use

Many schools, churches and government buildings were located in the study area during the period 1891-1915. Schools such as the McKay Avenue School (Rossdale, 1904), the Donald Ross Elementary School (Rossdale, 1912), the Riverdale Elementary School (prior to 1910) and the Bennett School (Cloverdale, 1912) are imposing brick buildings still standing today.

The 1911 Henderson's Directory records only one church--Rundle United (Riverdale, early 1900's), a childrens' shelter (Riverdale) and a mission hall (Rossdale). Religious services were carried out in Walterdale in a tent as early as 1907. A frame church was later built (date of opening unknown). During the week-days the church building was used as a school.

The Old Terrace Building (Rossdale, 96 Avenue and 106 Street), opened in 1906 was the first provincial government building in Edmonton. When the present Legislative Buildings were completed in 1912, the various government departments removed to the new building. Prior to old Fort Edmonton's destruction in 1915, its buildings were

used as government store houses. Below the fort a brick power plant was constructed, fueled by coal, to supply the government buildings with electricity.

Recreational Land Use

As the population of Edmonton and Strathcona steadily increased, the need for parks became a pressing reality. The parks system of Edmonton actually began in the North Saskatchewan River Valley. Prior to 1915, over 1000 ac (404.7 ha) had been acquired by the town councils at a cost of over $2 million. Much of this designated parkland was located in the study area.

In 1907, a seven-hole municipal golf course was located on Victoria Park Flats. A five hole municipal golf course had formerly been located on the site of the Legislative Buildings from 1896 (Plate 12). Also, a rifle range was established on the west end of Groat Flats by the Edmonton Rifle Association (Edmonton Bulletin: Sept. 26, 1902). With a membership of 110, regular use of the range was assured.

Picnics were a regular summer activity in the parks, including Groat and MacKinnon Ravines. Groat Ravine had been developed as a park between 1910 and 1912 on 17.1 ac (6.92 ha) of land donated by Malcom Groat (the City later purchased a further 8.2 ac or 3.32 ha). The ravine was cleared of debris, footpaths were located and a caretaker was employed to supervise the park. On summer Sundays as many as four hundred people would make use of the ravine (Dorsey: 1975).

Horse racing and fairs had been held on Rossdale Flats since 1879. When the Edmonton Industrial Exhibition Association purchased

Plate 12: Victoria Golf Course, 1900 (Provincial Archives of Alberta, E. Brown Collection)

the land from the Hudson's Bay Company in 1901, horse barns and grandstands were added to the existing race track. Fairs were held there until 1909 when the City purchased the present exhibition grounds (see Plate 10).

Use was made, no doubt, of the study area parks during the winter for tobogganning, sleigh rides, etc.. The frozen river was certainly the site of many skating parties and hockey matches.

Transportation Land Use

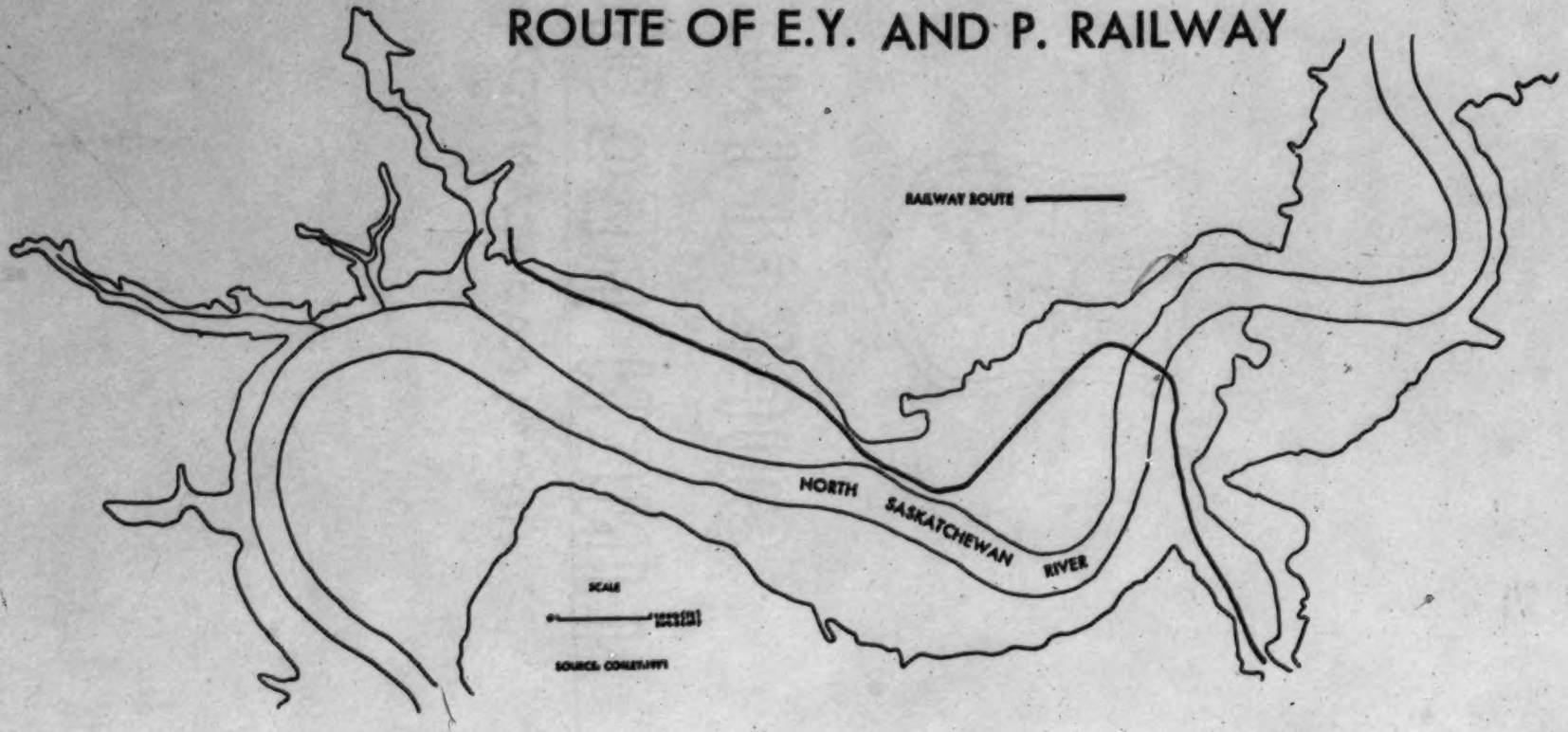
Bridges and railways were the paramount issues prior to 1915. As long as the terminus of the Calgary and Edmonton Railway remained on the south side and the North Saskatchewan River Valley remained unbridged, Edmonton feared itself at a disadvantage compared to Strathcona. Several statements in the Edmonton Bulletin would not, however, tend to support this view, such as:

> "Notwithstanding the disadvantages of deep valley and broad river to be crossed to reach the railway, the business of the country is still practically done in Edmonton, the only and original Edmonton --spelled with a large, capital 'E' and don't forget it."
>
> (Edmonton Bulletin: Nov. 22, 1894)

On April 6, 1900, the Low Level Bridge was officially opened after eight years of negotiations with the Federal Government. The bridge's construction was closely connected with the problem of securing a railway connection from the south bank. It wasn't until October 1902 that the first train, the Canadian Northern Railway, crossed into Edmonton.[7] The Canadian Northern line was joined to that built by the Edmonton, Yukon and Pacific Railway Company, whose line was located almost entirely in the study area (Fig. 11).

FIGURE 11

ROUTE OF E.Y. AND P. RAILWAY



The following years saw increasing railway connections and bridge construction. In 1905, the Canadian Northern main line reached Edmonton from North Battleford. Four years later, the Grand Trunk Pacific Railway reached Edmonton building west from Wainwright. The Dawson Bridge was opened in 1912 and a year later the 105 Street and High Level Bridges were completed. The Canadian Pacific Railway was extended across the latter from Strathcona into Edmonton.

Roads in the study area remained unpaved throughout this period. Vehicular traffic from the river flats to the high bank was thus hampered by both a rutted surface and a steep grade. In 1908, to overcome the difficulty of hauling heavy loads up the valley walls, Donald Ross, in association with other prominent citizens, built an incline railway at the foot of McDougall Hill. Two hoist cars raised by powerful cables ran alternately on a track inclined at 45° to the hillside. Unfortunately, this enterprise was a financial failure. The trappings were removed in 1913 shortly after the construction of the High Level Bridge. It is interesting to note that this hoist was the first of its kind in Western Canada. A similar hoist is still in use in Quebec City, transporting people from the Lower to the Upper Town.

The construction of three low level bridges and one high level bridge spelled doom to the old established ferry service as well as to the above venture. The ferry established in 1892 just below the later site of the Low Level Bridge was discontinued after the bridge opened. The cable ferry, the Belle of Edmonton, ran from Walter's Mill to the opposite bank commencing in 1882. This ferry service continued until November 1913, prior to the opening of the High Level

Bridge.[8]

Similarly, the expansion of the railway network in Western Canada undermined steamer and barge service on the North Saskatchewan. In 1888, the Northwest was the only steamer operating on the river. Its last years were spent as a tramp steamer before being beached on the river flats at Edmonton in 1896. The Northwest was finally swept to its destruction on the piers of the Low Level Bridge during the 1899 flood.

Other steamboats were, however, being built by John Walter for local use. The two most memorable were the City of Edmonton (1909) and the earlier City of Strathcona. The City of Edmonton[9] serviced the river as a freighter between Clover Bar and Big Island between 1910 and 1915. During the summer months, picnic parties often used the steamer to cruise to Big Island (approximately 10 mi or 16.1 km upriver from the western boundary of the study area) for a day's outing. The 1915 flood and the economic depression associated with World War One ended her career. The steamer was used as a freighter intermittently until 1918.

John Walter also built pleasure boats. The Alberta Plaindealer of 1899 noted the construction of a sailboat for the Koney Island Sporting Club (Alberta Plaindealer: Apr. 21, 1899). Although this particular boat was for use on Cooking Lake, it can safely be assumed that other pleasure boats were constructed.

The Process of Settlement

Natural Factors

The sawmills, brick yards and other industries of the 1891-1915 period found a river flat location to be advantageous. Not only was there ample flat land for expansion, but a plentiful water source for industrial use. Local coal and wood was readily available for fuel. Clay for the brick yards was also easily available on the alluvial flats and valley terraces.[10]

Water was available for domestic use, both as a liquid and as ice. During the 1890's, several water carriers lived by the river's edge to supply the town. The Edmonton Ice Company (Rossdale) also secured its wares from the river.

Despite the many natural advantages favoring the study area, two important disadvantages affecting the settlement process, must be noted. The steep grade of the valley wall and the width of the valley hampered the movement of traffic. The eventual bridging of the river and the passing of railways through the area to terminals in Edmonton and Strathcona was in the long run actually detrimental as will be explained below.

A second disadvantage was soon discovered in the North Saskatchewan River's frequent propensity to flooding. Floods prior to this period did little material damage due to the sparse nature of settlement. The flood of 1899, however, did serious damage to the many industries located on the flats at this time. The Edmonton Bulletin of that year describes the extent of the flooded area.

> "The rise began on Monday and reached its highest point some time on Thursday night. At that time

> the low ground near the river on Fraser's, Ross's and the upper H.B. Co. flats on the north side and Walter's and Bird's flats on the south side were covered with water. No buildings were carried away, but a great deal of damage was done by water in the basements of mills and dwellings."
> (Edmonton Bulletin: Aug. 21, 1899)

The loss of materials and machinery and the building damage caused by the flood were, however, soon recuperated in the following years.

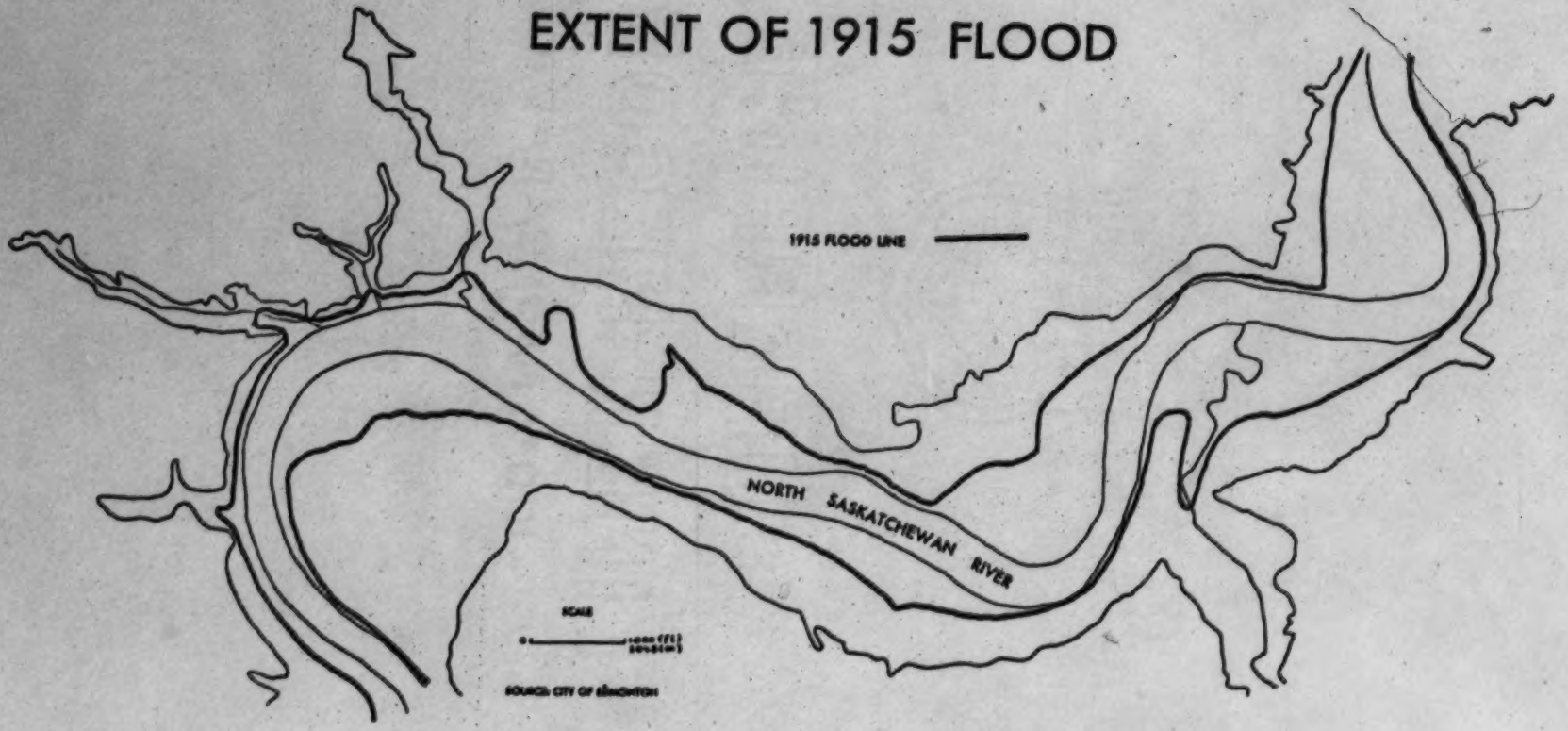
Flooding continued to occur but had little effect in hindering the expansion of settlement in the study area. The disastrous flood of June 1915 thus descended upon an unprepared population. The flats of the study area were inundated with 9 ft (2.74 m) of water (Fig. 12). Approximately fifty homes were swept away and five hundred more completely or partly submerged. Over $750,000 worth of damage was caused by the flood (Edmonton Journal: June 28, 1915).

The worst damage was sustained by the industries of the study area, many of which never recovered from the economic loss. The heaviest loss was suffered by John Walter. His Rossdale sawmill (established in 1907 near the Rossdale Generating Station) was completely destroyed. Other large industries that never recovered included the Edmonton Lumber Company, Pollard's Brick Yard and the Walterdale Tannery and Sash and Door factory, to name but a few.

Political Factors

Policies adopted by the town and city councils during the 1891-1915 period had important consequences for settlement in the study area. Space does not permit a full discussion of the development of all these policies. There were, however, three policies of

FIGURE 12
EXTENT OF 1915 FLOOD



special relevance.

The first policy was the publicity campaign undertaken to advertise the economic attractions of Edmonton and surrounding area. Numerous pamphlets, advertisements in leading newspapers and magazines drew attention to the area's special features. In addition, Edmonton became a regular participant in agricultural and industrial exhibitions through the Dominion. The year 1911, even saw special representatives sent to Eastern Canada and the United States to support the campaign effort.

Edmonton and Strathcona's dramatic population increase prior to 1915 may well have been partially induced by council policies, although during this period, immigration to Western Canada was also being encouraged by the Federal Government and the railway companies. Nevertheless, residential and industrial settlement features in the study area responded by a marked expansion in activity. More homes were built to house the new arrivals and a corresponding surge in individual activity (i.e. lumber mills and brick plants) occurred to serve the growing demand for construction material.

Commencing in 1910, a concentrated policy was also undertaken to induce manufacturing concerns to locate in Edmonton. Dale (1969) has outlined the recommendations made by a specially established Industrial Committee (1910) for the attraction of industry such as: the acquisition of land accessible to public utilities and the railway, a three to five year lease with options to purchase on expiry, free water and light, etc.. These recommendations were adopted with certain modifications in 1912. Although the following year the Provincial Government put an end to such inducements, the

city succeeded in becoming a prosperous manufacturing and distribution centre.

The central part of the North Saskatchewan River Valley was one of the city's main manufacturing areas. These industries located in the valley primarily to suit their high water requirements and to be able to take advantage of the river as a transportation medium (e.g. the rafting of logs in the spring). Many such as Walter's Sawmill (Walterdale) were supplied with power from a private generator or small power house near the river bank as was the case for the Edmonton Lumber Company (Cloverdale). Much of the study area was not supplied with public utilities. Expansion of industry in the study area was thus more a result of population growth and the demand for construction materials in the city as a whole, than as a direct result of council policies.

It was the city's attitude toward park development in this period that set the stage for the valley's future settlement pattern. The beauty of the North Saskatchewan River Valley had been extolled since the days of the first European explorers. When the City of Edmonton recognized the need for parks, it acted to acquire and develop land in the valley for public recreational purposes.[11] Consequently, large tracts in the study area were destined never to be built upon.

The political actions of the years prior to 1915, therefore, inhibited settlement of certain portions of the study area while leaving unchecked the development of Rossdale, Riverdale, Cloverdale-Lavigne and Walterdale.

Economic Factors

Strathcona's growth as a speculative town around the northern terminus of the Calgary and Edmonton Railway (completed 1891) was a constant annoyance to the progressive-minded citizens of Edmonton. Their jealousy arose out of the fact that nine-tenths of the freight carried by the railway was destined for Edmonton, and transport across the yet unbridged North Saskatchewan River was long and difficult. Strathcona's promotional activities and its numerous threats that government buildings would have to be removed to the south side added to the increasing state of suspicion and hostility.

Since incorporation in 1892, the main problem facing the town council of Edmonton was the building of a traffic and railway bridge to span the North Saskatchewan River. Financial negotiations between Edmonton and the Territorial Government were complex and drawn out. The details have been well documented by Dale (1969), the Strathcona Historical Group (1973) and Ockley (1932).

The editorial pages of the Edmonton Bulletin and the South Edmonton News/Alberta Plaindealer were frequently filled with items on the proposed bridge and railway policies. A major source of disagreement on the part of Strathcona was the selection of the lower bridge site (River Lot 8 to River Lot 17). An article in the Alberta Plaindealer of April 15, 1897, criticized the lower site as not being beneficial to the whole district.

Despite the delays and disagreements the bridge and railway connection were finally secured. The railway lines passing through the study area attracted a number of industries to locate close by. These included Vogel's Meat Packing Plant along the railway line in

Mill Creek Ravine and the Edmonton City Dairy, the Edmonton Lumber Company and Anderson's Brick Yard along the line in Cloverdale. On the north side, one of the first to take up a railway site was the Arctic Ice Company (Rossdale). This company and the generating station had private sidings to their properties.

The further development of the railway network in Edmonton prior to World War One and the growing number of bridges spanning the North Saskatchewan was, however, to have a detrimental effect on industrial growth in the valley. Many manufacturers chose to locate in other areas serviced by the railway and public utilities rather than have to face the necessity of transporting goods up the valley walls. Only those industries requiring large volumes of water found it advantageous to locate in the study area (e.g. the sawmills, brick plants and ice company).

Both Edmonton and Strathcona received economic stimulus from the Klondike Gold Rush of 1898. Since the 1896 discovery of gold in the Yukon, miners had been reaching the gold fields from the United States via steamer along the Pacific coast. In order to reap some economic advantage for Canada, two routes to the Yukon were proposed via Edmonton--one known as the MacKenzie River Route and one known as the Overland Route. Each route had its advocates. The fact remained, however, that Edmonton and Strathcona became outfitting centres for the prospective miners. Approximately fifteen hundred had set out from Edmonton (MacGregor: 1967, p. 125).

Accommodation was thus at a premium and tents were often substituted for lack of proper housing. Stores did a booming business. The industrial establishments in the study area kept pace with the

feverish activity. John Walter was busier than ever constructing flat-sleds and building boats. Construction materials were also in heavy demand keeping lumber mills and brick yards active.

The peak of activity, however, was reached by the end of 1898 and by 1900 the gold fever was diminished. Stragglers returned through Edmonton. Some remained, but the majority went home.

For the newly amalgamated Edmonton and Strathcona (Feb. 1, 1912), the years 1912 to 1914 were also boom years. Edmonton's population in 1912 numbered 53,383. An unprecedented influx of immigrants accounted for a large percentage of this total. Many immigrants camped in tents on the river flats and on the fringes of the city.

While the residential sector of the study area may have benefited from the influx of immigrants and their demand for land and homes, the industrial sector was beginning to show signs of contraction. Many industries were suffering from competition created by the railway-related manufacturing and wholesale centres around the CN lines in northern Edmonton and the CP lines on the south side.

John Walter's establishments had been showing signs of decline since 1900. The ferries had been permanently ousted by bridge construction. The arrival of the railways, marking the end of river transport, also helped to contract Walter's boat building business. The process of contraction accelerated after 1910.

By mid-summer 1913, the boom had collapsed. The city population began to fall and consequently the demand for homes decreased. The disastrous 1915 flood and a depression associated with World War One dealt a heavy blow to the study area industries.

Technological Factors

Many technological changes affected settlement in the study area. Although these innovations were not new to the early twentieth century, some and their application in the study area are worthy of note.

Technological changes were important to the valley industries. The brick yards, for example, had been summertime ventures only prior to the turn of the century. The making of common brick involved dumping the clay material into a mixing machine which pulverized the earth and mixed it with water. The mud was forced through a hole, roughly brick-shaped, producing a long bar of clay which was cut into the appropriate lengths by a wire cutter. The bricks were then either left to dry in the sun or carried to drying sheds and left for about one week.[12] The drying process required fine weather or the brick would turn 'green' and be unfit for construction. As a result, brick making was restricted to summer months.

Pressed bricks were manufactured by the Little and Anderson Brick Yards (Riverdale and Cloverdale). The pressed brick process required a special machine as the clay was finely ground in a complex machine and fed through a compressor. The powdered clay fell into molds which were steam heated to prevent sticking. The 'pulp' was then submitted to a pressure of 10,000 lb/in^2 (70,000 kPa). The resultant brick was hard and would remain in that condition even if not fired. This process eliminated the need for drying sheds and fine weather. The brick industry thus became a year-round operation providing permanent jobs and a continual supply of building material.[13]

Plate 13: Brick Kilns, Anderson's Brick Yard-Cloverdale, 1907
(Provincial Archives of Alberta, E. Brown Collection)

Other innovations in the brick industry included those receiving comment in the Edmonton Bulletin of 1902:

> "The new plant just installed by Mr. Little was next visited. The Henry Martin brick machine is the latest improved moulding machine known and is run in conjunction with Bairds and Son's patent standing machine, the sanding preventing the moulded clay from sticking in the moulds."
> (Edmonton Bulletin: June 27, 1902)

The incline railway at the foot of McDougall Hill has been discussed previously. It was a valiant attempt to overcome the problem of transporting heavy loads up the hill. Although a financial failure, and relatively short-lived (1908-1913), the lift did save approximately fifteen minutes in a trip.

The hoist was modelled on existing operations in Duluth, New York, Quebec City and Hamilton. It was 290 ft (88.39 m) long and 44 ft (13.41 m) high. The sides were brick walls 10 to 15 ft (3.05 to 4.57 m) high. Two 30 by 20 ft (9.14 by 6.10 m) cars ran alternately at a 45° angle to the hillside. Thick cables attached to drums weighing 8 T (8 T) hauled the cars up and down.

The lift was originally to be powered by natural gas located on Rossdale Flats in 1897. Subsequent drilling in 1908 proved that the reserve was insufficient. Following the city's refusal to supply electricity from the generating station, the railway resorted to a steam engine run on local coal.

The external trappings were removed in 1913, leaving the innards still buried in the hillside. Despite its financial failure, the lift was useful in wet weather when the grade was too difficult for horses. It was also popular with the crowds of basefall fans coming and going to Diamond Park.

The automobile made its appearance in Edmonton in May of 1904 (Edmonton Bulletin: May 26, 1904). The two cylinder automobile was brought to Edmonton from Winnipeg by J.H. Morris. Motorized vehicles were to have a profound effect on the morphology of Edmonton and the river valley. It will be interesting to note the rapidity of change in the valley's settlement pattern wrought by the automobile in the following years.

Social Factors

Social factors and their influence on the process of settlement were difficult to determine. Differing cultural backgrounds and expectations of immigrants arriving to live and work in the study area, no doubt, produced some differences in land use. What is certain, is that the increasing flow of immigrants to Edmonton necessitated construction of more homes on the flats of the study area.

The dwellings of the study area were generally (with the exception of J. Walter's third house and a few other homes) of a smaller and less substantial nature than those, for example, located on the high bank behind the Legislative Grounds. These latter houses were occupied by members of a higher economic class, such as, industry owners and managers, doctors, lawyers and government officials. Examination of the 1911 Henderson's Directory indicated that the majority of study area occupants were clerks, laborers, domestics, shop owners, tradesmen, etc.. Residential development on the river flats, therefore, tended to consist of more houses per block than the high bank area.

Conclusion

Settlement in the study area from 1891 to 1915 achieved a well balanced mixture of residential, industrial, institutional and recreational land uses. Transportation to the upper plain was still difficult and river transport remained important locally.

The development of industry was the most interesting feature of this period. These industries made thorough use of the study area resources such as, water, clay, wood and coal. Yet their demise was closely associated with bridge and railway development--the very factors that were contributing to industrial growth on the upper plain. A short period of 'boom and bust' prior to World War One and a disastrous flood (1915) ruined many businesses in the study area.

Edmonton by 1915 had acquired a substantial network of railways and four bridges across the North Saskatchewan River and Valley. The end of isolation and the establishment of a new national economic order not solely based on the fur trade meant that the city was no longer an outpost in a chain of fur trading forts and their settlements. Unfortunately, the end of isolation and new economic order also marked a change in the study area--from a major industrial centre to one of a subsidiary nature.

Chapter IV Footnotes

1 Ascertaining the location of residential buildings in the study area during the 1890's was rendered difficult by the incomplete recording of residential addresses in the Henderson's Directories. The 1893 and 1895 Henderson's Directories and the Lowe's Directory of 1899 recorded occupation and place of work more thoroughly than place of residence. It would, however, seem safe to conclude, on the basis of the above population statistics and the required labour force of the study area industries that the majority of individuals lived on the high bank and travelled to work in the valley during the 1890's. Examination of the 1907 and 1911 Directories did, however, adequately provide the information.

2 'Vacant' as recorded in the Henderson's Directories is most likely to mean vacant dwelling as opposed to vacant lot. (Conversation with Mrs. J. Honey, City of Edmonton Archives, 1975.)

3 The first house was likely built in 1875 (Day: 1974) on a site now occupied by the third house (10806 - 93 Ave.). This house, also of two storeys, was European in design--built as a shell to be filled in later. For a number of years it was the only building in Walterdale and was used as a residence, a general store, a ferry office, a telegraph office and an inn.

4 Very little of the study area, itself, was serviced. Although, between 1905 and 1915 Walterdale was supplied with running water, sewers and telephones.

5 A river valley site was chosen as being most advantageous. River water is used as a coolant.

6 The 'grizzly' was a device adapted for separating gold from gravel. It was composed of two wooden boxes open at the top and at one end (called the dump and sluice boxes). Dirt was shoveled into the dump box and water poured into it. The material washed onto an iron grate (the grizzly) and into the sluice box where the gold was trapped in a blanket.

7 In actuality, the train was composed of a Canadian Northern Railway locomotive pulling cars belonging to the Edmonton Yukon and Pacific Railway. The event is detailed by Corley (1971) who includes a brief analysis of some conflicting photographic evidence regarding "the first train" over the Low Level Bridge.

8 The two ferries were sometimes referred to as the lower and upper ferries respectively.

9 The City of Edmonton was 132 ft (40.23 m) long and had a 26 ft (7.92 m) beam. Its light draft enabled voyages to be made 200 mi (321.9 km) upriver. The boat was a stern-wheeler and was capable of carrying 575 passengers. Its career began as a freighter

between Edmonton and Lloydminster (Edmonton Bulletin: Aug. 19, 1909).

10 Pollard's Brick Yard had access to a clay source 18 ft (5.49 m) deep. A cable car on a tramway carried the clay to the plant. Water was obtained from a spring in the hillside above the plant. A coal mine was also located on the property (Edmonton Bulletin: June 27, 1902).

11 The Todd Report of 1907 was actually the beginning of a policy for a river valley parks system. The report's recommendations were adopted in 1915.

12 The bricks were burned in kilns before marketing (Plate 13)

13 Pressed bricks were used for facing and trimming buildings.

Chapter V

Settlement Morphology 1915-1945

Introduction

The period 1891 to 1915 marked the end of isolation for Edmonton and a significant change within the North Saskatchewan River Valley study area. The rise and fall of numerous industrial enterprises within the valley was the most striking feature of this period. Residential and recreational developments were also important. These latter sectors weathered the natural, political, economic, technological and social changes far better than did the valley industry. Just why the industrial sector of the study area failed to recover in the following period in contrast to the residential and recreational sectors will be examined in this chapter.

The period 1915 to 1945 has been described by Dale (1969) as one of "slow growth." Two World Wars and two economic depressions contributed to a relative stagnation in city development not to be relieved until the boom years following World War Two. However, too gloomy a picture must not be portrayed as several significant changes did occur that would contribute to the future pattern of city development. These changes also had important consequences for river valley development.

Settlement Morphology 1915-1945 (Fig. 13)

Residential Land Use[1]

The population of the study area had recovered from its World War One lows by the war's end. The 1919 figures show an increase for Walterdale, Rossdale, and Riverdale and a slight decline for Cloverdale-Lavigne. The most marked increase occurred in Riverdale, from 880 persons in 1916 to 1,030 in 1919. Riverdale's population was consistently higher until 1930. The 1937 figures, however, show Cloverdale-Lavigne to have the highest population--1,418 persons as opposed to 1,328 in Riverdale, 1,150 in Rossdale and 290 in Walterdale. The 1937 population ranking of the various flats remained the same until 1945, with all areas showing an increase. Cloverdale-Lavigne recorded a population of 1,657; Riverdale, Rossdale and Walterdale recorded 1,617, 1,364 and 310 persons respectively.

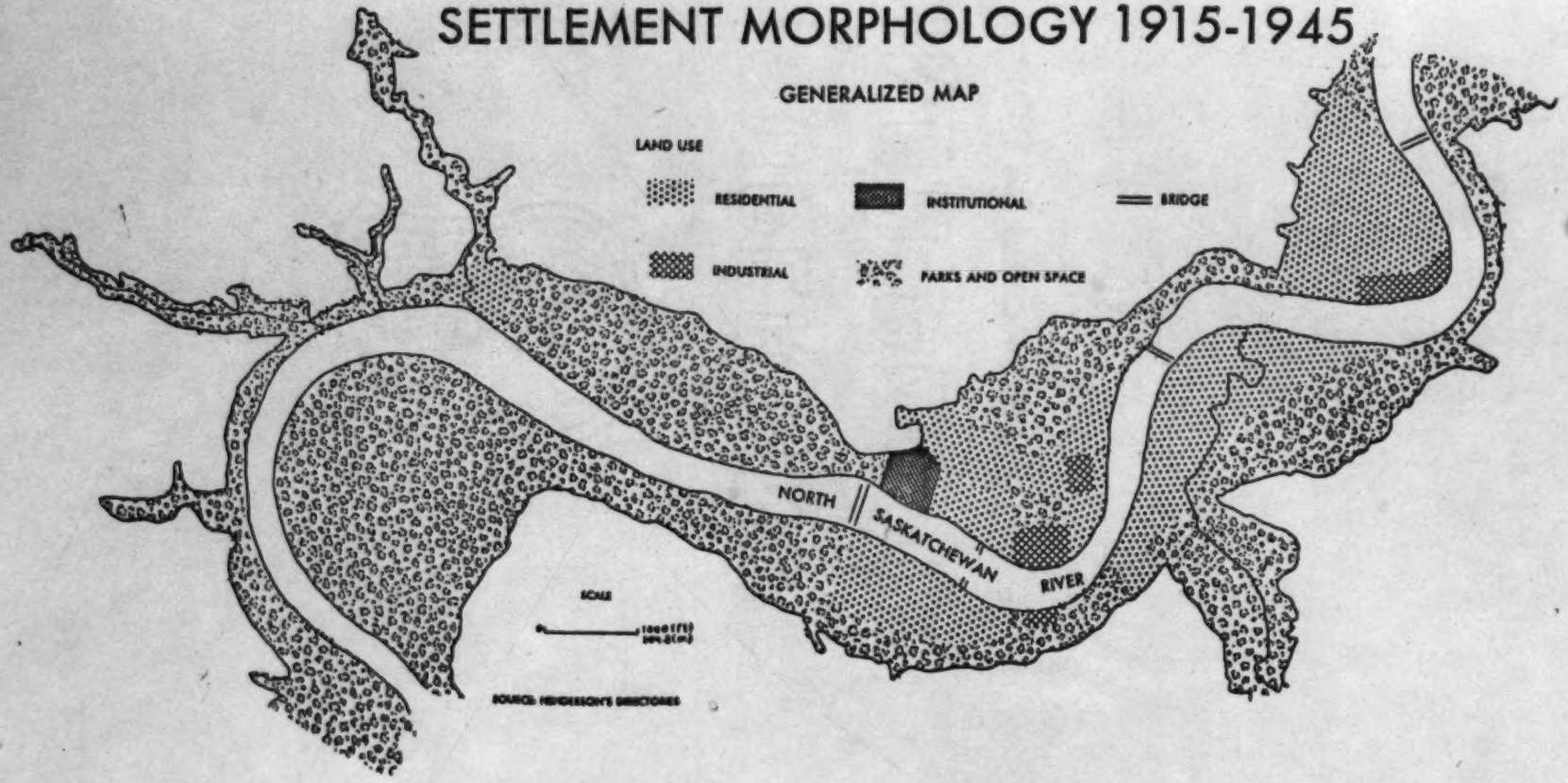
The total population of the flats increased from 2,070 in 1916 to 4,948 in 1945. Over the same period, the total Edmonton population increased from 53,846 to 111,800. From the population statistics it is evident that the river flat communities experienced similar population changes as that of the whole city--58% and 52% respectively[2] (Appendix 1 and 2).

By 1921, the number of residences in the river flat communities had increased markedly from their 1911 totals. Cloverdale-Lavigne acquired 203 new residential buildings, while Riverdale, Rossdale and Walterdale acquired 104, 93 and 17 respectively (Appendix 3). By 1941, the data shows Rossdale to have the greatest number of residences--507 as compared to Riverdale with 404, Cloverdale-

FIGURE 13

SETTLEMENT MORPHOLOGY 1915-1945

GENERALIZED MAP



Lavigne with 331 and Walterdale with 60. Six residential buildings had become established on Groat Flats by 1931. This number remained unchanged in 1941.

The number of vacancies was at a peak in 1921 as compared to 1941 (Appendix 3). In 1941, Riverdale had only 4 vacancies, when in 1921 there had been 30. This sharp decrease in available residences was repeated in the other communities of Cloverdale and Rossdale. Walterdale, on the other hand, showed a slight increase in the number of vacancies.

Residential buildings were still largely of frame structure with others constructed of brick. Houses were generally small in accordance with the preferences of the times. The Edmonton Bulletin of August 23, 1924 notes that "small houses are becoming more popular every season." As the national population increased, the demand for simple, convenient and inexpensive homes became more pressing.

Residential buildings also became more diversified in function during the 1915-1945 period. Although the vast majority were single family homes, a significant number were multiple dwellings, either converted single family homes, apartment blocks or institutional homes. Ross Flat Apartments (9540 - 101 Street), for example, a three-storey brick structure now owned by the City of Edmonton, was originally constructed in 1911. Its many uses have included a home for neglected and deliquent children (1911), the Salvation Army Grace Hospital (1925) and from 1942 to 1944, American servicemen were billeted in the building, then called the 'Little America Transit Hotel.'

Industrial Land Use

It will be remembered that an important settlement feature of the 1891-1915 period was the industrial sector. The lumber mills and many of the brick yards located on the flats never recovered after the damage suffered in the 1915 flood. Few industries remained after 1915 that could claim such relative importance as many of these early enterprises.

Throughout the 1915-1945 period, Rossdale had the greatest number of industries, followed by Riverdale and Cloverdale (Appendix 3). While all flats with the exception of Riverdale suffered a decrease in industrial activities, Walterdale was in the worst position, having had all of its industry destroyed by the 1915 flood. Thus while six industries existed in 1911, from 1915 on Walterdale's industrial function was lost completely. During the early part of this period notable survivors included Little's Brick Yard and Fraser's Lumber Mill (Riverdale), the Hardstone Brick Company (Cloverdale) and the Ottewell Grain Company (Rossdale). By 1931, all that remained was Little's Brick Yard.

The Twin City and Arctic Ice Companies (Rossdale) continued their seasonal operations of cutting ice along the North Saskatchewan River to supply local needs. The latter company is still continuing its business, although ice is now cut at Lake Wabamum. The Twin City Ice Comapny was not recorded in the 1931 or 1941 Henderson's Directories. An article concerning both companies, however, appeared in the Edmonton Bulletin of February 1926 and regarding the Twin City Ice Company alone, in June 1926. It can, therefore, be presumed that the Twin City Ice Company went out of business sometime during

the late 1920's.

Both the Twin City and the Arctic Ice Companies (the latter formerly known as the Edmonton Ice Company) had substantial warehouses in Rossdale. The Arctic Ice Company's warehouse had a capacity for 11,000 T (11,000 T). Regarding production and trade, a newspaper article reports on the Twin City Ice Company:

> "Most of the ice goes to the City of Edmonton but 150 to 200 carloads are shipped annually to provincial points. Wetaskiwin, Viking, Donalda, Wainwright and Lloydminster are among the rural centres who receive ice from the Twin City Ice Company. Last year Wetaskiwin received 27 carloads."
> (Edmonton Bulletin: June 28, 1926)

Of the breweries that occupied the river flats during the 1891-1915 period, the majority had gone out of business by 1941. The Northwest Brewing Company took over the assets of the Strathcona Brewing and Malting Company in 1924. Located on the north-facing hillside overlooking Queen Elizabeth Park, this modern brewery had the distinction of being the largest in the province employing 40 to 50 local residents. The business was subsequently know as Bohemian Maid Ltd.[3]

The Edmonton Brewing Company was recorded as 'closed' in the 1921 Henderson's Directory and did not reappear in the 1931 or 1941 issues. A brewery that had been constructed on Victoria Park Flats, where the Royal Glenora Club is now located, was abandoned as early as 1900. However, the empty building remained standing for nearly 50 years and was once used as the root house of a Chinese market garden.

Another notable industry was the Alberta Motor Boat Company

which had been established in 1912 near the Low Level Bridge. The company manufactured a wide range of craft for use on Alberta lakes and rivers and as far away as Hudson Bay. Schooners, motor cruisers, canoes and even dog sleds were manufactured.

Improvements to and expansions of the city's power and water system continued throughout the years 1915 to 1945. The generating capacity of the power plant had been boosted to 40,000 kw (54,384.8 hp) in order to supply the demands of war time industry.

Progress was made in water purification, beginning in 1926 with a study of river turbidity at different stages of flow. Shortly afterwards a system of artificial sedimentation with coagulation was developed. Prior to this implementation, residents of the entire city as well as of the river flats had complained about 'liquid mud' in their taps when water levels rose in the seasonal high water periods. By the late 1930's Edmonton's Rossdale facilities provided an efficient purification system.

Coal and gold mining were still being carried on within the study area. It has been mentioned previously that gold was still being dredged along the North Saskatchewan in the 1930's. The importance of gold mining, however, had by that time declined beyond recovery and held on only because of the general economic depression.

The only coal mine mentioned in the Henderson's Directories of the period 1915-1945 was the Dawson Mine, located near the south end of the Low Level Bridge. The mine operated from 1904 to 1940 with intermittent production during the summer months. The Dawson Mine was fortunate in having a railway access enabling coal to be hauled readily to business and residential customers. The mine

employed 30 to 50 men and produced 100 to 150 T (100 to 150 T) of coal per day.

Other mines did, however, exist in the study area. Many such as the Chinook Mine (Riverdale) were closed down in the late 1920's and early 1930's due to public pressure. Mine shaft subsidence on the flats and on the upper surface resulted in severe property damage thereby prompting the final closure of all mines within the city limits.

Any description of industrial activity in the study area would not be complete without brief mention of certain commercial enterprises such as grocery stores, personal services, garages, hotels, etc.. Each river flat community was well served with grocery stores closely resembling today's convenience stores. In addition to grocery stores, there were barber shops, sub-post offices and cleaners and dyers. Two hotels can be mentioned--the Donald Ross Hotel (Rossdale) and Cameron House Hotel (Cloverdale).[4]

Market gardening and green house cultivation were noted to have taken place during the 1915-1945 period. Two Chinese market gardens operated, one in Walterdale and one on Groat Flats. Two greenhouses also operated in Riverdale--Cliff Greenhouse and Whitten's Greenhouses (now Riverdale Greenhouses).

Institutional Land Use

During the 1915-1945 period, each river flat community was well served with schools and churches (Appendix 3). Four schools had been built during the former period--two in Rossdale (McKay Avenue and the Donald Ross School) and one each in Riverdale and

Cloverdale (Riverdale Elementary and Bennett School respectively). The 1921 data records the presence of Walterdale School[5] and the 1931 data, the presence of the Little Flower School in Rossdale. The latter was moved to Edmonton from Red Deer in 1929. A Roman Catholic separate school in Cloverdale was recorded as being closed in the 1921 data and did not subsequently reappear. A second separate school was recorded in Riverdale in the 1931 and 1941 data.

The McKay Avenue School is an interesting example of changing land use on the flats. The 1881 school was originally built as a 20 by 30 ft (6.10 by 9.14 m) frame building near the site of the present school house. The present brick structure was commenced in 1904. The old frame school house was moved from the brow of the bank to the flats in 1906 and is currently being used as a residence (9647 - 100 Street).

Churches and charitable institutions included representatives of the main denominations. Examples from the 1941 data include the Walterdale United Church, St. Matthews Anglican Church (Riverdale), St. Barnabas Church (Cloverdale) and the Children's Shelter and All Saints Mission (Rossdale).

Government buildings were confined to Rossdale and included the Old Terrace Building and the new Parliament Buildings discussed in the previous section. In 1939, the Hudson's Bay Company sold its horse barns at 102 Street and 97 Avenue (Rossdale) to the Government for one dollar. The building was used as naval training barracks for H.M.C.S. Nonsuch until 1963. The building is now the Ortona Army Barracks.

Recreational Land Use

The 1915-1945 period saw further important changes in the recreational uses of the study area. Numerous improvements were made to the existing facilities. For example, the Municipal Golf Course on Victoria Park Flats was extended to eighteen holes. The old club house was built in 1928.[6]

Private recreation facilities were also being developed. That private enterprise was able to develop a considerable part of the area's recreational potential will be explained below. Two of the most important facilities developed were the Mayfair Golf and Country Club on Mayfair Park Flats and Renfrew Park in Rossdale. A portion of land was leased to the Mayfair Golf and Country Club Ltd. in 1921 for a period of 21 years provided that the agreed upon expansion and landscaping goals were met. Further agreements and an extension of the lease concluded in 1939, entitled the club to maintain its holding until 1981.

Renfrew Park was also a private development on 4 acres (1.62 ha) of land leased to Henry Roche in 1933 for a period of five years. It was at this time that the baseball park was developed. In 1938, the park property reverted to the city, but its function remained unaltered.

In June 1936, similar leasehold provisions were extended to the Edmonton Ski Club regarding three parcels of land on Connor's Hill, Cloverdale. A 150 ft (45.72 m) jumping tower was constructed on the hill and improvements were made on the adjoining slopes for the pleasure of local ski enthusiasts (Plate 14). The area involved was extended in 1938 and again in 1941.

Plate 14: Connor's Hill Ski Facilities, 1976
(S view)

Other parks and recreational areas within the study area included the Parliament Building grounds, Riverside Park and numerous natural locations such as Mill Creek, Groat and MacKinnon Ravines. Mill Creek was designated parkland in 1934 and much remained in its natural state. MacKinnon Ravine had been privately developed early in this period by J.B. Gardiner, who owned a home at the top of the bank. Steps were built to the bottom of the ravine and a small portion of the area artistically designed with Japanese pagodas, bridges and waterfalls. There is some controversy over the location of the pagodas as the ravine has now been partially cleared for a roadway.

Riverside Park, later renamed Queen Elizabeth Park, totalled 77.8 ac (31.48 ha). It was described in the Edmonton Bulletin as:

> "...hidden away below Saskatchewan Drive on the south side, and sloping to the river's edge, it is not reached so easily by street car, though a delightful motor road runs almost through the centre. The scenery is more like Banff on a small scale, and is a great surprise to those who see it for the first time. Many tall spruce trees grow in it and right in the centre a delightful cultivated spot with lawns and flowers is like a fairy bower."
> (Edmonton Bulletin: July 20, 1918)

One should also note important facilities built by the river flat community leagues. Riverdale, Rossdale and Cloverdale constructed skating rinks for the community residents. The first Rossdale rink was built along 100 Street near 95 Avenue. It was later moved to 102 Street. The rink was used as a tennis court during the summer months. Riverdale's second rink was located at the corner of 89 Street and Rowland Road and was claimed to be the largest sheet of outdoor ice in Western Canada (The University Practicum: 1975, p. 12).

Transportation Land Use

Land transportation in the study area was effectively dominated by the four bridges constructed during the former period--the Low Level, High Level, Dawson and 105 Street Bridges.[7]

Railway service to the river flat communities declined with the removal of the Edmonton, Yukon and Pacific Line. Passenger service ceased in 1929. The railway, however, played an important role during the years of World War Two. It was used to transport equipment and personnel headed for three important northern projects --the Northwest Staging Route, the Alaska Military Highway and the Canol Project.

Water transportation, apart from gold dredging machines, was restricted during this period to pleasure craft. In 1937, the Saskatchewan Belle, a flat-bottom 5 T (5 T) motor boat, with 35 ft (10.67 m) keel, double deck and a dance floor was constructed by A.I. Perry (Edmonton Journal: Nov. 10, 1953). Evening trips were made to Big Island for two seasons, then the boat was removed for pleasure outings on nearby lakes. Perry had also built another pleasure boat, the River Queen, which ran on the river for a short time before it was removed to Alberta Beach.

The Process of Settlement

Natural Factors

Certain natural factors were favourable to continued settlement in the 1915-1945 period, just as they had been in the 1891-1915 period. Level land was still available for construction on the river

flats. Those areas set aside for parklands, of course, could not be built upon as decided by city council prior to 1914. Other areas were held in suspension pending the clearing of tax arrears accumulated during World War One.

Park construction was also facilitated by the nature of the river flats. Landscaping was unimpeded by major slopes and the alluvial soils provided an excellent footing for a variety of grasses suitable for recreational uses such as golf and playing fields. Those areas still remaining in a relatively natural state such as MacKinnon, Groat and Mill Creek Ravines were also of high recreational value.

During this period, more use was made of the valley slopes, in particular, the valley walls. The walls behind Rossdale, Riverdale and Cloverdale became more populated and the tiny community of Lavigne came into existence on the north facing slope just to the east of Queen Elizabeth Park. The steepness of Walterdale Hill, however, continued to prohibit construction.

In addition, many slopes in the valley were used for recreational purposes such as skiing and tobogganning. The use of Connor's Hill for the construction of skiing facilities has already been noted.

A serious hazard to construction in the study area, both on the valley slopes and river flats, was found to exist in the presence of numerous abandoned and now concealed coal mine workings. An article in the Edmonton Bulletin of March 31, 1930, described the concern of Riverdale residents over property damage alleged to have been caused by coal mine subsidence. An appeal had been made for a 50% reduction on land assessment for damages such as twisted fences, broken and cracked foundations and damaged roads and sidewalks.

During 1932, public pressure and the mounting cost to the city finally resulted in legal closure of many mines operating within the city. The city-owned Dawson Mine, however, remained open until 1944.

Construction in those areas undermined by coal workings would always be restricted. Grierson Hill, for example, has remained a persistent problem with slumping, sliding and water accumulation. Riverdale, as will be noted in a later section, is devoid of those large structures characteristic of Rossdale, mainly as a result of the subsidence problem.

There were also natural factors which contributed to the demise of industry within the study area. The effects of the 1899 and 1915 floods have been discussed in an earlier section. Thus, the river's propensity to flood was a partial deterrent to the recovery of many old industries and eventually resulted in the city discouraging new industries from establishing in the valley.

In addition, resources were becoming depleted. This applied especially to the brick manufacturers who extracted clay from the valley. In 1958, for example, the manufacture of bricks was discontinued at Little's Brick Yard when their clay source became exhausted. Land reserved for park development compounded the problem by rendering large areas unavailable for exploitation.

Political Factors

Many property owners were unable to pay their tax arrears that had accumulated during the years of World War One. Their inability to pay created a shortage of municipal revenue. In 1916, by the request of council, the city charter was amended by the province. The

new charter allowed the city to sell land in tax arrears before Dec. 31, 1913 and up to Dec. 31, 1915 (Statutes of Province of Alberta: 1916).[8] The city could acquire property in arrears if it was not sold within an allotted time period. In this manner, a considerable portion of land fell into municipal ownership. The Edmonton Bulletin of Feb. 21, 1917, for example, advertised 20,114 lots in arrears.

Much of the parkland within the study area passed into public ownership as a result of property in arrears between 1914 and 1930, thereby extending the system created prior to 1914. Subsequent economic depression resulted in city council sanctioning the development of parks by private groups, although development was controlled and annual rent collected. The establishment of Renfrew Park, the Mayfair Golf and Country Club and the Connor's Hill ski facilities was accomplished by means of this policy.

The development of a public park system in the river valley was aided by a city council resolution of 1926:

> "That in the opinion of this council the broken banks, low lying properties, and other properties not suitable for building purposes and now or hereafter coming into possession of the City, be reserved from re-sale and added to our parks and ravine resources..."
> (Minutes of the City Council Meeting: Jan. 29, 1926)/9/

This policy was extended in 1941 to give the city the authority to negotiate for property it required to complete its park system.

In addition, the 1933 Zoning Bylaw divided the city into eleven zones which included a public parks zone. This Bylaw along with the Todd Report of 1907 effectively "designated the river valley

and ravines as a system of public parks; and introduced land use regulations" (City of Edmonton: 1974, p. 7).

This system of land use regulations introduced with the 1933 Zoning Bylaw and combined with a policy devoted to outward expansion of the city hindered i dustrial and, to a lesser extent, residential development in the study area. Prospective home owners were encouraged to build on the city's periphery. Similarly, industry was encouraged to locate on land set aside for industrial purposes. By 1945, industry in the river valley had been successfully removed. This left the study area for predominantly residential and recreational uses.

Economic Factors

Dale (1969) has outlined Edmonton's economic fluctuations that occurred during the 1915-1945 period. There was a slight improvement in conditions from 1925 to 1930, following the economic depression associated with World War One. A serious depression lasted from 1930 to 1935, after which conditions began to improve. Although improvement was somewhat lessened by the onset of World War Two, economic conditions continued to become more favourable.

Many of the large scale industries, noted previously, succumbed to the general economic depression and failed to re-establish themselves even after having survived financially and/or physically, the 1915 flood. For example, attempts to re-open Pollard's Brick Yard (Walterdale) after World War One failed. The city refused to grant relief from the tax burden that had accumulated during the war and the property was eventually confiscated. A similar attempt was

made to re-open Anderson's Brick Yard (Cloverdale) in 1929; closed during the war when Col. Anderson, the owner, went overseas with the Canadian Corps. The plant was, however, unfortunately destroyed by fire shortly after the announced opening.

The industrial pattern of Edmonton was now becoming well established. The detrimental effect this had on the industry in the study area has already been noted. Increased competition from industry formerly located in the valley intensified this effect. Clark Lumber Company, for example, was operating on 109 Street north of 103 Avenue.[10] Competition was also received from the Alberta Brick Company, who had established a thriving plant just north of the city, near St. Albert, as early as 1912.

The lack of railway facilities, as in the case of Riverdale, plus land lost to recreational use further encouraged industries to remove from the study area. The Fraser and Company's Lumber yards were early removed to 97 Street to facilitate access to the growing market. The mill in Riverdale was modernized and continued to operate for sometime afterward. It was, however, not mentioned in either the 1931 or 1941 Henderson's Directories.

Residential development during the 1915-1945 period increased considerably in the study area communities. The 1920's in Canada as a whole were times when home building was encouraged. This situation is reflected in the pages of the Edmonton Bulletin advertising the desirability of home ownership and the campaign appears to have been effective.

It is evident, however, that subsequent economic depression did significantly affect the residential and institutional settlement

aspects of the river valley. Day (1974) described Walterdale as having 80% of its population on relief, with elderly people predominating. The community league was forced to close in 1942, followed by the closure of Walterdale School in 1947.

Cultivation of vacant lots in all parts of the city was urged by the Vacant Lot Garden Club to help overcome food shortages and release other food supplies to the allied armies overseas. Vegetables were grown and even pigs and chickens were reared. To what extent this activity was carried on in the study area, however, is not known.

Technological Factors

Technological improvements during the 1915-1945 period were very numerous. Twentieth century technology was imposing itself upon Edmonton at a furious pace. The main technological improvements in the study area manifested themselves in two ways: actual technological improvements and the more ideological environmental concerns.

The automobile was rapidly changing the city's morphology in the same manner as other North American cities. Automobile ownership within the study area was not determined, however, it can be concluded that an auto's greatest benefit would be to ease travel to and from the valley. Many industries found the use of trucks the greatest step taken toward modernization. Little's Brick Yard had replaced their horse-drawn vehicles by a steam engine and at a later date by electric motors to speed up delivery of their product.

Other technological changes within the industrial realm spelled gain or loss to river valley enterprises. Loss must certainly have accrued to the ice harvesting companies on Rossdale when electric and

gas refrigerators made their appearance. In contrast, much satisfaction was received from the improvements made to the city's water purification system, the details of which were briefly described above.

Environmental concern in the study area made its regular appearances in the pages of the Edmonton Bulletin. This concern extended beyond the desire for preservation of the valley's natural beauty. Residents of the river flat communities along with the city were showing their concern about the quality of the valley environment.

Two examples will suffice to illustrate this environmental concern. First, in the early 1930's, residents of Cloverdale had diligently challenged the city over odour emanating from the operation of an incinerator and sewage disposal plant in the vicinity. This case was eventually brought before the Supreme Court. A second example, can be found in the city's insistence that Groat Ravine not be used as a refuse dump and that sewers emptying into the ravine should be abolished. This case was brought to court, in which the city asserting its rights against the owners, won the contest.

Social Factors

Several new social factors may have influenced settlement changes in the study area, notably in the communities of Rossdale, Riverdale, Cloverdale-Lavigne and Walterdale. Foremost among these factors was the growing population of the river flats, partially influenced by newly arrived immigrants and the influx of wartime personnel. The low vacancy rates tabled in 1941 as compared to 1931 would tend to support this observation.

In response to the growing residential population, numerous community services such as schools, churches and community leagues flourished. These institutions helped create a community spirit--a unity which would stand the communities in good stead in the following years. Furthermore, such facilities would tend to attract families who desired schools for their children, churches to attend and the social, political and recreational roles played by the community leagues.

Commercial services such as grocery stores, garages and other personal services were also attracted by the growing number of customers. The physically compact nature of the river flat communities provided a similarly compact and willing market for these businesses.

Conclusion

Two World Wars and a major world depression had influenced the growth of Edmonton for thirty years. Within this period, political, economic, technological and social changes had a significant impact on river valley settlement.

The most notable aspect of this period was the demise of industry in the study area. The industries that remained were survivors of the city's policy toward tax arrears and park development and the natural hazard of river floods. The residential and recreational functions of the study area now attained dominance--the former as a result of population growth and consequent housing demand and the latter as a result of city council's policy toward the development of a river valley park system. The residential areas of

Rossdale, Riverdale, Cloverdale-Lavigne and Walterdale were further supported by a growing number of community and commercial services.

Park development continued on a rather diminished scale. The efforts of private developers achieved what would otherwise have been a financial impossibility. Some private developments, such as that of Renfrew Park, were eventually acquired by the city. Mayfair Golf and Country Club, however, is a striking example of this policy gone awry in extended bargains and lease agreements. Dale (1969) has pointed out the incongruity of an elite, private club existing in a park system intended for the public.

Chapter V Footnotes

1 Population statistics for the 1915-1945 period were taken from Day (1974) and the City of Edmonton Census. Day's figures were approximate for the years 1916, 1919, 1922, 1925 and 1930.

Approximations were also necessary in dealing with the city census material--the data most readily available being for the years 1937 and 1945. These latter statistics were recorded by polling division, the boundaries of which do not match the boundaries of the study area. In addition, the polling division boundaries were changed every few years, making a comparison even less accurate.

The polling division boundaries are a fairly close fit for Cloverdale and Riverdale for both 1937 and 1945. The Cloverdale polling division, however, excludes Lavigne. Similarly, the division including the majority of Riverdale does exclude a small area west of 94 Street and north of the river. The Rossdale division also excludes approximately ten blocks toward the top of the bank. All statistics for Rossdale, Riverdale and Cloverdale-Lavigne are,therefore, only approximate and on the low side. Walterdale statistics are approximate as taken from Day (1974).

2 One must also note the small number of Americans billeted in the study area during World War Two. In 1945, their numbers were 52.

3 After O'Keefe's took over the company they retained the previous name for a time. For the year immediately before the 1975 closing, it was labelled O'Keefe's.

4 There is little information regarding Cameron Hotel. The Edmonton Journal of June 28, 1915 reports that during the flood "'The Cameron House,' which is in the official assignee's hands, has been requisitioned to feed and house as many people as possible living south of the river..." (Edmonton Journal: June 28, 1915).

5 Devore (1956) mentions that this school occupied a frame building formerly used as a church (date of opening uncertain). A brick school house was built in 1923. The older building was used by the Walterdale Community League from 1920 until it was condemned in the 1930's.

6 The old club house was torn down during the summer of 1975 and a new one commenced immediately adjacent and to the east.

7 The 105 Street Bridge was renamed "The Walterdale Bridge" in 1967.

8 Cited in Dale: 1969, p. 158.

9 Cited in Dale: 1969, p. 184.

10 The Clark Lumber Company had controlled the Edmonton Lumber Company (Cloverdale) which lost its mill, equipment and lumber in the 1915 flood. The operation was not subsequently rebuilt. A lumber yard was established on 101 Street south of 102 Avenue in 1900. It was removed to the 109 Street location in 1905, the land having been purchased from the Hudson's Bay Company.

Chapter VI

Settlement Morphology 1945-1975

Introduction

The 1915-1945 period was one of slow growth for Edmonton. Several cycles of economic depression restricted development of the city and especially of the North Saskatchewan River Valley. The study area experienced relatively dormant times as little development occurred to disturb the largely residential pattern of life.

The immediate post-war years and the following decades, however, saw marked expansion in the population and urban area of Edmonton, particularly as the city felt the impact of large-scale oil developments centred on Edmonton. The need to provide recreational space for the growing population coupled with the financial and legal ability to act upon this need turned attention once more upon the valley. The ensuing conflict between residential, industrial, institutional, recreational and transportation uses will become evident in the following pages.

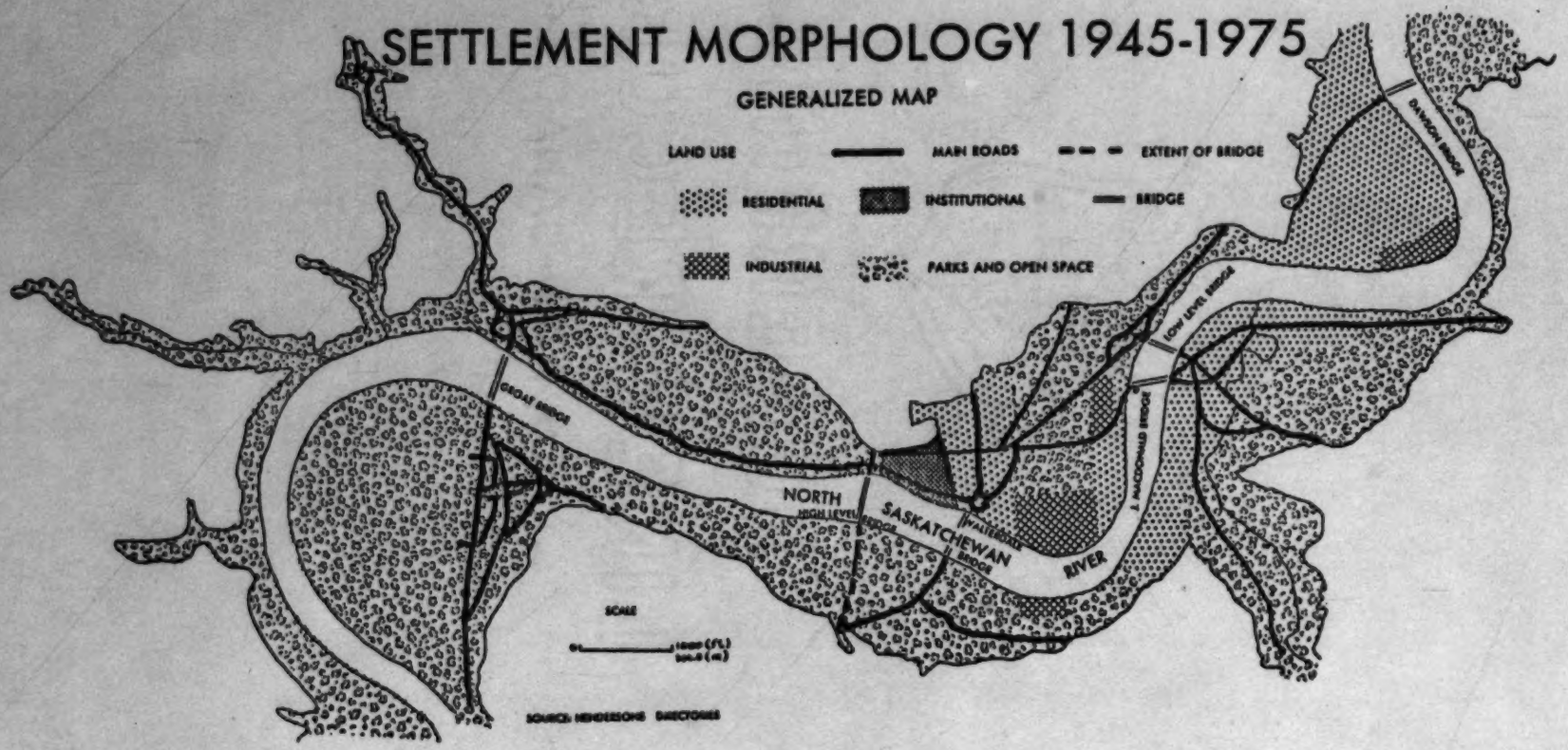
Settlement Morphology 1945-1975 (Fig. 14)

The settlement features of the study area during this period particularly emphasizes the increasing trend to greater areas of open space. Once again, discussion of these settlement features will include residential, industrial, institutional and transportation

FIGURE 14

SETTLEMENT MORPHOLOGY 1945-1975

GENERALIZED MAP



uses (Appendix 3).

Residential Land Use

In general, the total population of the river flat communities showed a decreasing trend during the 1945-1970 period and an increasing trend to the present.[1] The decrease is particularly evident in Walterdale which gradually lost population from a 1945 total of 310 to 4 in 1973. By 1975, the resident population of Walterdale was zero. Although Cloverdale-Lavigne experienced an increase of population during the 1950's, the onset of the 1960's initiated a progressive decline from 1,797 in 1960 to only 902 in 1975.

In contrast, Riverdale and Rossdale experienced significant population increases during the 1970's. After a steady decline during the 1950's and 1960's, Riverdale's 1975 population reached 1,747, an increase of 279 over the 1970 total and an increase of 130 over the 1945 total. Rossdale's population statistics show a more fluctuating pattern, from a high of 2,266 in 1950 to a low of 1,108 in 1970. By 1975, however, the population had again reached a high of 2,307 (Appendix 2).

The number of residential buildings during this period declined from the 1951 totals of 459, 462 and 574 for Riverdale, Cloverdale-Lavigne and Rossdale respectively. By 1971 these figures had dropped to 441, 358 and 379 respectively. Walterdale continued to lose residential buildings throughout the period. By 1971, only 13 residences remained as compared to a total of 60 in 1941. Groat Flats had several residences established by 1931. By 1951, 9 residences were evident. However, this small community was short-lived after this

date due to the construction of the Groat Bridge and Groat Ravine Road in 1955.

The number of vacancies in the major communities of Riverdale, Cloverdale-Lavigne and Rossdale increased during this period to 1971 totals of 15, 10 and 16 respectively. This represents an increase of 8, 6 and 14 over the 1951 vacancies, respectively. Vacancies in Walterdale decreased with the decreasing number of dwellings.

The most notable change in the type of residential units in the river flat communities was the growing number of apartment buildings. This post-war phenomenon, for reasons outlined below, is most evident in Rossdale where the decreasing number of dwelling units could not have housed the increase in population. It is apparent that one apartment block can house many more individuals than a single family or converted single family unit.

The apartment blocks are of two types: walk-ups and high-rises.[2] The most prominent of these upon the landscape of course, are the high-rise structures. These features distinguish Rossdale from the low profiles of Riverdale and Cloverdale-Lavigne.

The total number of both types of units is striking. By 1971, Rossdale had acquired 46 such structures, having had only 11 in 1951. Riverdale and Cloverdale-Lavigne recorded only small numbers of walk-up apartment units. Walterdale, alone, was confined to single family units.

Industrial Land Use

The demise of industrial activity in the North Saskatchewan River Valley study area has been noted previously. This is once

again emphasized in the 1945-1975 period. According to the City of Edmonton's River Valley Study (1974), only three industries remain in the study area: J.B. Little and Sons Limited (brick yard) (Riverdale), Arctic Ice Limited (Rossdale) and the V.W. Body and Paint Shop Limited[3] (Rossdale) (Plate 15). One might, however, consider other smaller industries, many of which were operated within a building also recorded as a residence. These included contracting and construction companies, a sporting goods manufacturer, an auto wreckers, a machine shop and a floor sanding company.

The city generating station continued to be a major feature of activity in Rossdale (Plate 16). In addition, during the 1950's, work was commenced on the sewage disposal plant in Queen Elizabeth Park.

Commercial activities also showed a tendency to decline during this period. The small grocery stores remained the most important commercial features in the river flat communities. Their viability, however, was threatened by the attractiveness and accessibility of large supermarkets which had made their appearance in other areas of the city during the post-war years. There were 7 grocery stores in 1971: 1 in Riverdale, 4 in Rossdale, 1 in Cloverdale, and 1 in Walterdale. In 1951, there had been 13 stores: 2 in Riverdale, 5 in Rossdale, 5 in Cloverdale and 1 in Walterdale.

The remaining hotel building, the Devon, originally an annex built by Donald Ross in 1876 nearby Edmonton's first hotel, was destroyed by fire in May 1975. The vacant building had been used by transients for many years. In contrast to this very old commercial structure is the existing 21-storey office tower being built on

Plate 15: V.W. Body Shop-Rossdale, 1976
(W view)

Plate 16: Rossdale Generating Station, 1976
(W view)

Bellamy Hill adjacent to the Chateau Lacombe. The $7 million tower, known as Park Square, includes 15 floors of office space, a banking level and 5 floors of parkade. Immediately to the south, a $3 million, 180 suite apartment tower is planned.

Other important commercial activities during the 1945-1975 period included cartage companies, a photographic studio, a towering service, service stations, a dry cleaners, greenhouses and many others.

Institutional Land Use

Schools and churches were still very much in evidence during this period, although the use and number declined slightly. The Walterdale school closed in 1947 (although the building was recorded in the 1951 Henderson's data). The Little Flower School (Rossdale) was closed in 1971 and the building is now used for Rossdale Community League meetings. In a similar vein, the Donald Ross Elementary School (Rossdale) was closed in 1974 and is now occupied by offices of the British Commonwealth Games Association. The Bennett School (Cloverdale) was closed in 1971 and leased to the Government of Alberta in 1973 for the Capital City Recreation Park Project offices. The only functional schools remaining in the study area are the McKay Avenue School (Rossdale) and the Riverdale Elementary School (Plate 17).

There was also a considerable decrease in the number of churches from 7 in 1951 to 3 in 1971. The latter figure excludes the Synod Office of the Diocese of Edmonton and the Anglican Church of Canada located in the same building in Rossdale (9707 - 107 Street). Two churches were operating in Riverdale: Rundle United Church

Plate 17: Riverdale Elementary School, 1976

(established early 1900's) and the Sacred Heart Parish.[4] The third church, the Plymouth Brethren, was located in Cloverdale.[5]

What happened to the church buildings that were no longer needed was not examined in detail. At least one religious establishment changed function--the All Saints Mission Hall recorded in the Henderson's data of 1941 (9735 - 100A Street). During the early 1950's, apart from its religious function, it served as a meeting place for the Rossdale Community League. By 1961, the building had become the Anglican Social Service Hall and by 1971, any reference to a building at that particular address is missing in the data.

One might also note that the St. Catherine's Girls Residence (Rossdale) located at 9707 - 107 Street in the 1931 through 1961 data, was recorded as 'rooms' in the 1971 data. It then shared a building with the Anglican Church of Canada, the Synod Office of the Diocese of Edmonton and the Alberta Department of Agriculture offices.[6]

The Calvin United Church (Cloverdale) was recorded at 9702 - 96A Street in the 1921 through 1951 data. In 1961, the location was recorded as 'vacant.' Similarly, the St. Matthews Anglican Church (Riverdale) was recorded at 10208 - 90 Street in the 1931, 1941 and 1951 data. This address was not in evidence by 1961.

Community league halls were still very much in evidence during this period. The league halls of Riverdale and Cloverdale were of a fairly permanent nature. Halls were recorded at 9736 - 98 Avenue (Cloverdale) and at 9231 - 100 Avenue (Riverdale) in the 1951 through 1971 Henderson's data. On the other hand, Rossdale Community League members met in a variety of buildings. These included the Donald Ross School, a community league hall on 102 Street, the All Saints

Mission and the Little Flower School. As noted previously, the Walterdale Community League was closed in 1942.

Government buildings such as the Parliament Buildings, the Terrace Building and the Highways Building are prominent institutional features of Rossdale. The Ortona Barracks and its occupant H.M.C.S. Nonsuch, the City of Edmonton Fire Department Training School and the Alberta Civil Defense Rescue School were additional uses located in Rossdale as recorded in the 1971 data. Only evidence of the former two can be found today.

Recreational Land Use

By far the most striking changes in the study area during the 1945-1975 period occurred in recreational land use. The acreages of existing parkland vary from Mayfair Park of 450.85 ac (222.83 ha) to McDougall Hill of 21.15 ac (8.5 ha). Other large parkland areas include:

Park	Area (acres)	
Victoria Park	252.43	(102.34 ha)
MacKinnon, Ramsay and Groat Ravines	156.65	((63.47 ha)
Gallagher Park (Cloverdale)	156.47	(63.29 ha)
Mill Creek	141.86	(57.38 ha)
Walterdale Park	139.89	(56.67 ha)
Queen Elizabeth Park	84.63	(34.23 ha)
Rossdale	61.48	(24.85 ha)
Emily Murphy Park	47.05	(19.22 ha)
Grierson Hill	42.49	(17.16 ha)
Riverdale	26.08	(10.52 ha)

(City of Edmonton: 1972, p. 66)

The acquisition and development of the above parklands was difficult process fraught with debate at the provincial, municipal and public level. The process of recreational development by public and private sources will be discussed below. Only a brief description of change in recreational facilities will be included at this point.

The privately owned land, later to become Mayfair Park, passed into city ownership as a result of tax arrears in the 1930's. The planned development was not, however, completed until 1966. At this point in time, the layout only was finished and work on the buildings had just begun. Mayfair Park, today contains a large boating lake (used for skating in the winter), restrooms and snack bar, play areas, picnic areas and a hiking trail connecting it with Whitemud Creek. The park has large expanses of open, grassy area suitable for a wide variety of family and group activities both during the summer and winter (Plate 18).[7]

In 1960, as Mayfair Park was being planned, Emily Murphy Park was opened. Similar in function, Emily Murphy Park also contains a memorial pavilion.[8] Queen Elizabeth Park was also being improved at this time.

Three other important recreational developments included the Kinsmen Sports Centre, the Royal Glenora Club and improvements to Renfrew Park. In 1953, the Kinsmen Club signed a lease with the city to develop 53 ac (21.45 ha) of Walterdale to provide public recreational facilities. By 1964, the club had spent $300,000 on development and was given a five-year lease renewal with an extra 41.5 ac (16.79 ha) on the west side of their original site (Dale: 1969, p. 384). The present covered field house and associated facilities were part of

Plate 18: Mayfair Park, 1976
(NW view)

Edmonton's national Centennial project. The field house is 204 ft (67.18 m) wide, 368 ft (112.17 m) long, and 48 ft (14.63 m) high, covering an area of 1.66 ac (0.64 ha). The interior contains a stadium, 185 ft (56.39 m) by 310 ft (94.49 m) and 37 ft (11.28 m) high. The room contains bleachers for 1,764 persons. In addition, a large enough floor area remains along the wall for a 220 yd (201.17 m) running track (Edmonton Journal: Jan. 2, 1968).

In June 1954, construction was begun on a new concrete grandstand at Renfrew Park to seat 2,150 persons, raising park seating capacity to 6,237 (Edmonton Journal: May 17, 1954). The new concrete grandstand was built to replace an old stand destroyed by fire in 1949.

In contrast to such developments for public use were the private facilities established by the privately-owned Royal Glenora Club. A twenty-five year lease was negotiated with the city in 1958 for an 8 ac (3.24 ha) site on the east end of Victoria Flats (Edmonton Journal: Apr. 24, 1961).

In 1959, the John Walter Historic Site was opened. Although other historic sites in the valley are marked by cairns, this area is the only complex of its kind in the study area. The complex, located on the original Walterdale site, includes: the first, second and third Walter houses, a ferry and many other historic artifacts. There is also a sizeable picnic area.

Other recreational facilities still in evidence throughout the 1945-1975 period include the Mayfair and Victoria golf courses, the Edmonton Ski Club facilities on Connors Hill and the community skating rinks and play areas on the river flats.

A recent development on Cloverdale flats is the Muttart Conservatory. The pyramidal structures, when completed, will be a greenhouse show-place for Edmonton residents. The project was planned in keeping with the overall plan for a river valley parks system (Plate 19).

Transportation Land Use

A proliferation of raodways through the study area is especially characteristic of the current period. Roads such as Bellamy Hill (1952), Queen Elizabeth Park Road (early 1950's), the Groat Road (also in the early 1950's), the River Valley Road (late 1950's) and the Walterdale Hill Road (late 1960's) are examples of routes developed to ease cross-valley travel.

Bridge approaches were also improved; including those for the Low Level Bridge which were approved by city council in 1956. One comment reads:

> "Traffic from the south side is funnelled to the bridge down three hill roads--Scona, Connor's and O'Connell. At the north end of the bridge, three directions are possible, McDougall, and Grierson Hill roads and Rossdale road."
> (Edmonton Journal: May 3, 1956)

A series of overpasses were designed to eliminate the bottleneck that occurred around the bridge approaches due to this 'funnelling' of traffic over the bridge.

Three new bridges were also constructed in the study area during the 1945-1975 period: the Low Level Bridge Twin (1949), the Groat Bridge (1955) and the J. MacDonald Bridge (1971). Their purpose was to further ease cross-valley traffic congestion.[9] However, the

Plate 19: The Muttart Conservatory-Cloverdale, 1976
(N view)

increase in road space necessary to accommodate access to these bridges resulted in the loss of a large proportion of valley land. The ensuing conflict between transportation, residential and recreational land uses will be discussed below (Plates 20, 21, 22 and 23).

In 1954, virtually all traces of a through valley railway were obliterated with the removal of the Edmonton, Yukon and Pacific Railway tracks. The removal of the tracks in the valley had been requested by the city two years earlier to facilitate improvements on the north bank and new road construction. Corley (1971) describes one of the improvements made:

> "The section up the grade on the south bank of the river was used to provide a new highway access to the Low Level Bridge. The bridge itself was converted to road use; with the adjacent span (which had been added as a two direction highway bridge), the pair now permitted one way traffic on each bridge and increased capacity."
> (Corley: 1971, p. 4)

Along the north bank, the abandoned grade and trackway can still be seen running in a westerly direction along the valley wall from under the High Level Bridge (Plate 24).

Water transportation during the current period is of a recreational nature only. Little evidence remains of the former importance of the North Saskatchewan River as a major transportation medium.

The Process of Settlement

The changing settlement morphology of the study area during the 1945-1975 period can be related to the five factors--natural, political, economic, technological and social. Many factors accounting for change are similar to those of previous sections. However, the most

Plate 20: Low Level Bridge and J. MacDonald Bridge, 1976
(SW view)

Plate 21: High Level Bridge, 1976
(SE view)

Plate 22: Dawson Bridge, 1976
(SE view)

Plate 23: Groat Bridge, 1976
(NW view)

Plate 24: Old Edmonton, Yukon and Pacific Railway tracks, 1976
(W view)

outstanding factor in this section is political in nature. Accordingly, a greater emphasis will be placed on this aspect.

Natural Factors

Current development in the study area is apparently little affected by environmental restraints. A recent study by the Alberta Department of the Environment, however, warns that the risk of recurrence of a flood of the 1915 magnitude is once in 45 years (Alberta Department of the Environment: 1974, p. 9-10). A large rainstorm in the catchment area during the spring or early summer in combination with already saturated ground is most likely to produce flood conditions. The effect of the Bighorn and Brazeau Dams, located on the upper reaches of the major upstream tributaries, was also considered and the safety factor in the prevention of flooding was assessed as negligible (Alberta Department of the Environment: 1974, p. 19).[10]

In view of the danger of flooding, the report concluded that:

> "...it would be in the best interest for the minimization of damage, to restrict flood plain areas for parks and recreational parks,..."
> (Alberta Department of the Environment: 1974, p. 24)

It also recommended that suitable measures be taken to flood-proof or relocate, if possible, existing buildings.

In fact, several significant floods occurred during the 1945-1975 period to prompt such concern. The flood of June, 1952 reached a mean daily peak of 125,000 ft 3/s (12,737,500 m 3/h) and an instantaneous peak of 132,000 ft 3/s (13,450,800 m 3/h) (Alberta Department of the Environment: 1974, pp. 7-8). A total of 40 homes were

evacuated from Rossdale, Cloverdale and Riverdale (upstream from the Dawson Bridge). Many basements and yards were flooded and sewers backed up. Mill Creek also backed up and inundated several properties. No trouble was reported from Walterdale where the water failed to top the bank (Edmonton Journal: June 25, 1952). Floods to cause some concern occurred again in 1954, 1962, 1965 and 1972.

In August 1954, rising river waters swept debris into the partially constructed Groat Bridge. Three arches collapsed when the supporting falsework was swept away. Portions of the damaged bridge were blasted out and new falsework erected. Apart from the delay in completion, the damage costs amounting to over $100,000 were a warning to future bridge engineering (Edmonton Journal: August 27, 28, 31, 1954).

The river flats were still found to be topographically favourable for construction of buildings and park development. However, as noted in the previous section Riverdale had become unsuitable for large buildings due to coal mine shaft subsidence. The greater stability of Rossdale, its proximity to downtown Edmonton as well as interim development controls on apartment districts favoured this latter area for the construction of high-rise buildings.

Park development, as in the case of Mayfair Park and the Kinsmen Facilities in Walterdale, were rendered feasible by ample flat land and suitable soils for the growing of grass and trees. Rougher terrain on valley slopes was planned as for example: the pitch and putt golf course (Walterdale), hiking trails such as those in Walterdale and Mayfair Park, the tobogganning and skiing facilities such as those of the Edmonton Ski Club on Connor's Hill and the

recent body kiting slope below the Provincial Museum.

Roads built in the study area encountered a variety of topographical environments. The River Valley Road, for example, was built along the top of the river bank on Victoria Flats. Construction of this road was facilitated by the flat land. Some difficulty was, however, experienced with the instability of the river bank below the Legislative Grounds.[11] The engineers found it necessary to excavate the road bed to river level and rebuild the road with boulders, gravel and sand as soil was scooped from the bank.

Roads were also constructed on slopes to ease cross-valley congestion. Notable among these roads were Bellamy Hill, Queen Elizabeth Park and Walterdale Hill roads. The latter was improved in the late 1960's providing increased accessibility to Walterdale.

Ravines, by providing a natural roadbed and a ready-made gradient to the upper plain, were especially attractive to city transportation engineers. Groat Ravine, in conjunction with Groat Bridge, was utilized in this manner. The use of MacKinnon Ravine for a similar cross-valley route is currently being debated.

Political Factors

An increasing city population subsequently increased the need for recreational space. Attention was once more focused upon the river valley and its many natural amenities. The city's policy toward development of these amenities evolved at a rapid rate throughout the 1945-1975 period. The progress of city policy has been outlined in the River Valley Study prepared by the City of Edmonton Planning Department (1974).

The Bland-Spence Sales Report (1949) was the third[12] in a series of reports that would examine current development in the valley and make recommendations for its future use. This report reaffirmed the pre-1915 desire to reserve the North Saskatchewan River Valley and Ravines as "a comprehen-ive system of public parks." It was instrumental in introducing a system of controls on development within the valley and also in introducing a policy by which private property could be acquired. The River Valley Study (1974) reports that these ideas were first implemented in 1951, by setting Rossdale aside as parkland and opposing later applications for development of this area.

The Top-of-the-Bank Policy came into existence in 1968 when a precise definition of the limit of the North Saskatchewan River Valley and Ravine System became necessary in order to fix some control on developments that would intrude into the valley. The 2200 ft (670.56 m) contour line was defined as the limit of the system. In addition principles were established to control development in proximity to the system. The Top-of-the-Bank Policy recommendations were adopted by city council in July 1970.[13]

Edmonton General Plan Bylaw was adopted in 1971. Its contribution to evolving valley policy has been outlined thus:

> "1. States a policy of retaining the River Valley and Ravines as a system of public parks,
> 2. States a policy of environmental protection for the River Valley and Ravines;
> 3. Prescribes a set of objectives and principles upon which decisions concerning development in the River Valley should be based;
> 4. For the first time, gives legal authority to River Valley policy objectives;
> 5. Designates lands for long range acquisition for future parks development in bylaw form."
> (City of Edmonton: 1974, p. 10)

This latter plan for acquisition includes Rossdale, Riverdale, Cloverdale and Lavigne.

The Preliminary Regional Plan, adopted by the Provincial Planning Board in 1972, had zoned most of the river valley and ravine system as 'Metropolitan Recreational.' Riverdale and Rossdale, however, were zoned as 'General Urban.' In general, the Preliminary Regional Plan supported city parks policy in those areas zoned 'Metropolitan Recreational' and provided legislation by which river valley and ravine development could be controlled.

The Edmonton Zoning Bylaw closely followed the General Plan Bylaw. Although much of the study area had been zoned 'Metropolitan Recreational,' some inconsistent zoning existed in Rossdale, Cloverdale and Lavigne. The Zoning Bylaw elaborated on the permitted uses within each zone, provided additional regulations for development control and provided a system for slope protection.

The Parks Master Plan (1971) introduced a more specific river valley park development plan. Its policies, planning and financial guidelines are, however, consistent with the objectives and principles of the General Plan Bylaw (City of Edmonton: 1974, p. 14).

The River Valley Study itself, attempted to point out the inconsistencies that exist between these various policies and to suggest within the major problem areas how difficulties might be solved. Further discussion of the solutions set out by this recent study is not within the scope of this thesis. However, let it suffice to list those areas of policy inconsistency examined by the study:

1. The definition of the river valley and ravine system,

2. The development of a policy-program link,
3. Management tools.
(City of Edmonton: 1974, pp. 50-84)

The evolving policy toward future land use in the North Saskatchewan River Valley and Ravines has had profound repurcussions on the study area. These repurcussions have taken the form of public versus private and intra-public conflicts. The proposed Capital City Recreation Park has currently accentuated a difficult situation (for the sake of simplicity, the essential features of the Capital City Recreation Park are outlined in Appendix 4).

The above conflicts will be examined with a view toward illustrating their effect upon the settlement morphology of the study area. Evaluation of the pro's and con's associated with the conflicts is beyond the scope of this thesis.

In the public versus private sphere, the most evident conflict is between the city's park development policies, proposed development and the residents of the study area flats--Rossdale, Cloverdale, Riverdale, and Lavigne. The residents have fought to save their homes for a number of personal, financial and social reasons. One of many examples is the fight that has developed over the proposed extension of Mill Creek Ravine Park as set out by the City of Edmonton Parks and Recreation Department in March of 1975. Four hundred and fifty homes would be taken over by the city in the first five years to accommodate extension of the present boundary beyond the top of the ravine. When the city had called a meeting to solicit public reaction to the proposed plan, over 700 angry residents arrived to protest (Edmonton Journal: May 13, 1975). A coalition of 44 groups and organizations, banded together under the name 'Mill Creek Build a Park,'

had endorsed a 10-point counter proposal of constructive alternatives to present at this meeting. The 18-month study coordinated by the 'Save Tomorrow Oppose Pollution' (STOP) group, emphasized that the park should not destroy existing houses (Edmonton Journal: May 6, 1975).

The land acquisition necessary to accommodate the Capital City Recreation Park and other park developments is another major example of residential functions threatened by public policy. It appears from recent reports in the Edmonton Journal that most of Riverdale will be retained as a low density residential area, even though some 29 properties would have to be acquired along the river bank south of Rowland Road. The result may largely be due to the active defense program of the Riverdale Community League supported by the Edmonton Federation of Community Leagues in the fight to preserve their homes. The city commissioners have commented that Riverdale:

> "...has the greatest potential to be viable in the long term (according to such criteria as housing condition, owner occupancy, geographic cohesiveness and resident attitude). Retention of other river valley communities would, however, conflict significantly with the objective for a public recreational zone throughout the river valley."
> (Edmonton Journal: May 7, 1975)

The outlook, apparently, is thus not as optimistic for the remaining communities. The bulk of Cloverdale is to be acquired by 1990, most of Rossdale by 1980 and all of Lavigne by 1985. Rossdale has been given high acquisition priority for two reasons: the development of a provincial government centre and a new 105 Street bridge in the next 10 years (Edmonton Journal: May 7, 1975).

The conflict between park development and industry is minor

because of the small number of industrial concerns in the study area. Other activities, however, such as the Rossdale Generating Station have posed special problems. In this case, the conflict is basically an environmental one. Any plan to remove the generation and transmission facilities from the valley would necessarily have to take into consideration engineering, environmental and social costs (City of Edmonton: 1974, p. 47).[14]

During the 1945-1975 period, there has, however, been ample evidence of city actions contravening the objective of retaining the river valley as a 'public' recreational area. These actions have caused particular consternation to those individuals and groups opposing acquisition of their property to accord with city park development policies. Reference is made here to the number of private recreational facilities that exist within the study area by lease from the city. These are the Edmonton Ski Club (24 ac/9.71 ha), the Mayfair Golf and Country Club (153.9 ac/62.28 ha), the Kinsmen Club facilities (94.3 ac/38.16 ha) and the Royal Glenora Club (8.7 ac/3.52 ha). The River Valley Study (1974) has summed up this inconsistency:

> "The presence of private clubs within the limits of the River Valley and Ravine System is inconsistent with the City's public parks philosophy. In addition, the City is put into an embarrassing and compromising situation with regard to its land acquisition policies in the central River Valley Flats area--The practice of acquiring, for future parks purposes, properties which represent much of the low cost housing stock in Edmonton is ironic considering that the City already owns large tracts of River Valley parkland which it leases to private clubs."
> (City of Edmonton: 1974, p. 57)

Policy inconsistency was again revealed in 1963 when a 247-suite

apartment house was approved for construction on Bellamy Hill in return for land east of the North Saskatchewan River, opposite the Edmonton Country Club. This decision was hotly contested throughout the next year. However, the Edmonton Journal of January 21, 1964 reported that the investment company concerned was proceeding with plans for the building despite legal moves to void all previous agreements with the city. A similar controversy ensued over the construction of Park Square described above. The results are now all too evident on the skyline of Rossdale.

The intra-public conflict is best represented by the loss of study area parkland to roadways. The actual area in roadway and the effective loss in parkland is large. The proposed MacKinnon Ravine roadway and the proposed widening of the 105 Street interchange would involve an additional loss of approximately 74 ac (29.95 ha) of parkland (City of Edmonton: 1974, p. 4).

The loss of parkland has been matched by the loss of private property. The construction of approaches to the valley bridges took their toll in the destruction of homes. In 1970, for example, four houses in the 95 Street and 100 Avenue area were removed for the re-routing of Grierson Hill road to connect with a new approach to the Dawson Bridge (Edmonton Journal: June 10, 1970). By the late 1960's 114 homes were removed from the Low Level Bridge and Riverdale areas to make way for the J. MacDonald Bridge (Edmonton Journal: Aug. 6, 1969). Some of these homeowners had been residents in these areas for fifty years and very much resented the destruction of their homes and the previously quiet, tree-lined streets of their neighbourhoods. The destruction of such a large number of homes necessitated

by the building of the J. MacDonald Bridge, along with other bridges and roads, partially accounts for the decrease in the number of residential buildings during this period.

Economic Factors

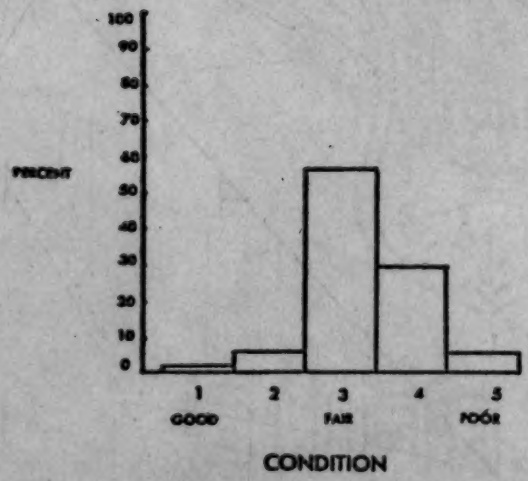
Edmonton's economic climate in the post-World War Two years was prosperous indeed. The discovery of oil at Leduc in 1947 and subsequent developments in oil based industry had the effect of encouraging migration to Edmonton and also raising the average income. The subsequent demand for residential and industrial land furthered expansion of the urban area. The 1945-1975 period has thus been one of rapid growth.

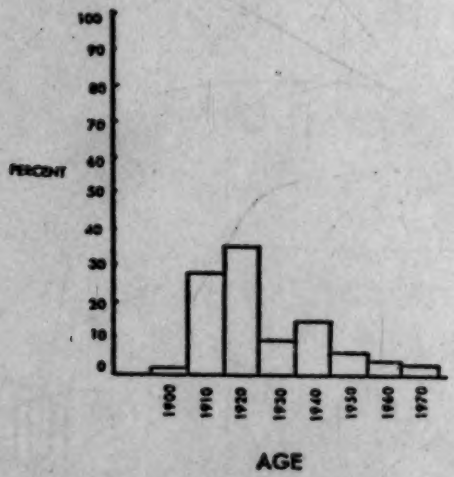
The expansion of Edmonton and the demand for housing in the immediate post-war years were responsible for the increase in the number of residential buildings and the corresponding low vacancy rates in the study area. The later decrease in the number of dwellings, especially in Riverdale, Cloverdale-Lavigne and Walterdale were due to the political and social factors discussed in their respective sections.

The age and fair to poor condition of housing, however, would seem to indicate deteriorating economic conditions in the study area communities (Fig. 15). This conclusion can be supported by the decreased number of commercial activities. For example, the Walterdale grocery store went through seven different owners after 1944. Many others went out of business, altogether. It will be shown below how population changes contributed to this economic demise.

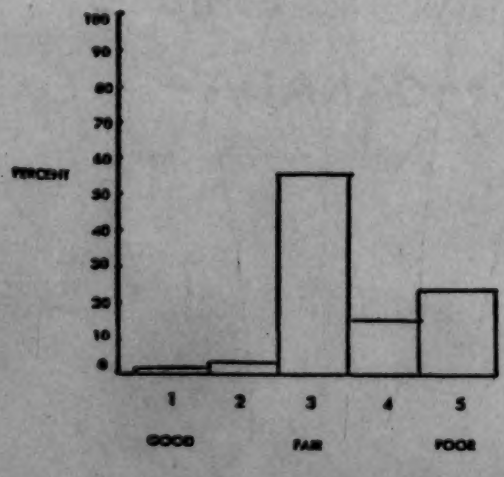
FIGURE 15
HOUSING CONDITION AND AGE

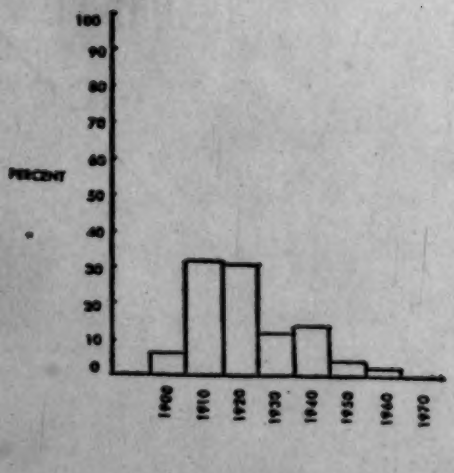
RIVERDALE





ROSSDALE

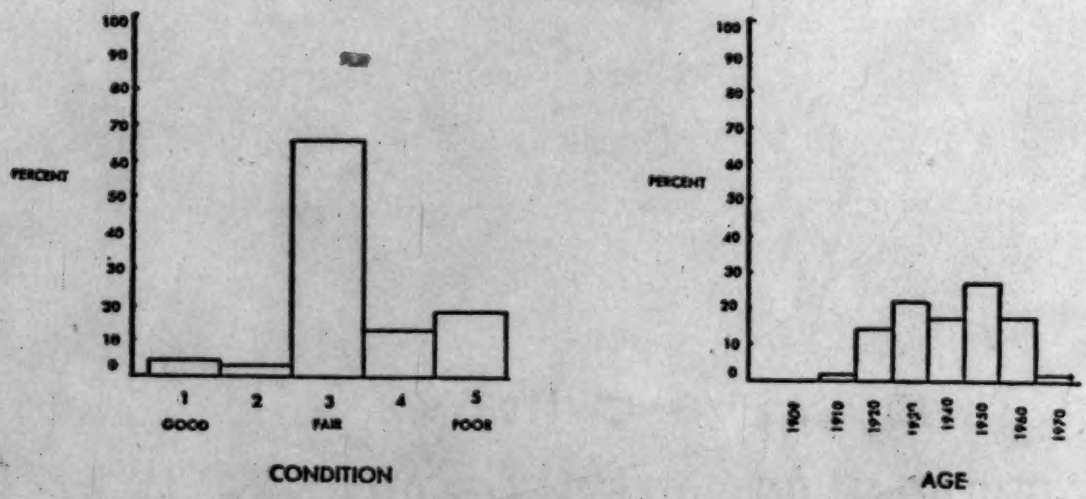




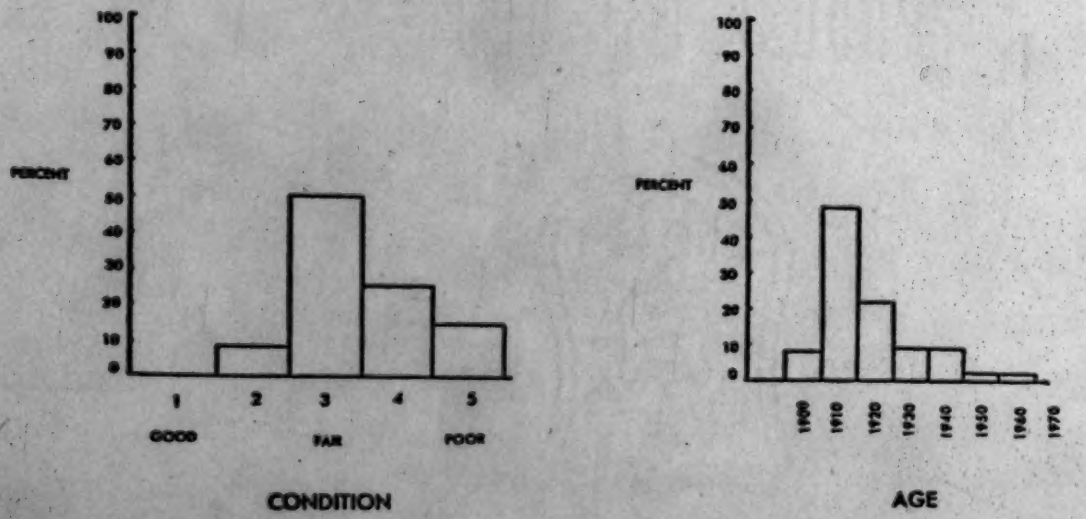
SOURCE: CITY OF EDMONTON , 1974

FIGURE 15 CONTINUED

CLOVERDALE



LAVIGNE



Technological Factors

One important technological development during the 1945-1975 period was the conversion of the Rossdale Generating Station from a coal to a gas operation in 1958. Clouds of black smoke and cinder no longer issued from the plant, no doubt, making life considerably more pleasant for nearby residents.

Other technological factors affecting the settlement process are numerous and varied according to their environmental, economic and social impact. Examples are: construction of two multi-lane bridges and complex bridge approach ways, road construction on valley walls, high-rise developments and many others. An interesting proposed development with considerable environmental impact was the river weir scheduled within the Capital City Recreation Park plan. Strong opposition from 'environmentalist' groups resulted in the provincial government's withdrawal of this feature of the plan.

Social Factors

Social factors have also been responsible for the changing land use pattern during the 1945-1975 period. The dramatic increase in population after the close of World War Two resulted in an increased demand for houses and community services such as schools and churches. The river flat communities were affected by this growth as was evidenced by the increase in the number of houses and the number of operating schools and churches.

City policy towards development in the river valley and the subsequent discouragement of new developments were partially responsible for the eventual shift of population away from the river flat

communities. Many homes were also destroyed by road and bridge construction forcing relocation of the occupants elsewhere.

The age structure of the river flat communities also bears examination. Most evident is the large proportion of two groups--the elderly and the 20 to 30 age groups. On the other hand is the decreased numbers of children. The consequent enrolment resulted in the closure of all but two schools in the study area. Churches have also closed down due to decreased membership.

As described above, Rossdale was the only community to incur a population increase. This has largely been due to high-rise and walk-up apartment construction. Such accommodation is especially attractive to young single persons and childless couples. This feature may in great part account for the increased percentage of individuals in the 20 to 30 age group since 1961 (Plate 25).

Community spirit has been an important social feature of the river flat communities since the early 1920's. In the spring of 1975, the community leagues supported by the Edmonton Federation of Community Leagues opposed the Capital City Recreation Park plan by presenting a brief to the city's Public Affairs Committee. The brief was prepared by 40 residents of Rossdale and Cloverdale-Lavigne along with other interested individuals--a group calling itself the 'University Practicum.' The study was essentially a critique of the Capital City Recreation Park plan and a constructive alternative based on the preservation of the best features of the river flat communities.

That the communities are socially viable is an established fact. This has not, however, preserved their existence in the face

Plate 25: High-rise Buildings on Rossdale, 1976
(NW view)

of continual pressure from the city's park policy. Walterdale was the first victim in the study area--many homes having been demolished in the late 1960's to accommodate the Kinsmen Fieldhouse and car park. Day (1974) reports that the community was 'close knit' as in a small town. The city's refusal to license the erection of new dwellings spelled the doom of Walterdale. This appears to be the eventual fate of Rossdale, Cloverdale-Lavigne as the city undergoes its land acquisition program (Plate 26 and 27).

Conclusion

The 1945-1975 period has been one of rapid growth for Edmonton in both the areas of population and economy. Rapid change would, however, be a more appropriate phrase for the North Saskatchewan River Valley study area. The most notable changes were the decrease in population and the number of residential buildings in favour of parks and recreational developments. This change has been brought about not without considerable conflict between the public and private interests. Intra-public conflict has also occurred during this period especially between park conservation and roadway construction.

The proposed development of the Capital City Recreation Park has roused more conflict, as the remaining river valley flat communities of Rossdale, Riverdale and Cloverdale-Lavigne are threatened on an even larger scale than before. It remains to be seen whether the efforts of community leagues and other groups will be successful in attaining a compromise between the public plan and the private interest factions.

Plate 26: Cloverdale, 1976
(SE view)

Plate 27: Residential Street-Riverdale, 1976

Chapter VI Footnotes

1 The population statistics for the 1945-1975 period are low approximations of the actual figures. City census data were used as in the previous section with similar difficulties. The low approximations are a result of the poor match between the study area boundary and the city's polling divisions. The greatest errors occur in the exclusion of Rossdale north of 98 Avenue and Lavigne, the latter being included in a much larger and unrelated polling division. Walterdale was also included in a much larger polling division. However, more reliable estimates were available for Walterdale from Day (1974).

2 A walk-up apartment is usually of 3 storeys only, while a high-rise, as its name suggests, may be considerably larger necessitating the installation of elevators.

3 The V.W. Body and Paint Shop Limited is a new-comer having established itself in the old brewery building in Rossdale (Plate 15).

4 The Sacred Heart Parish (10135 - 89 Street) was formerly St. Anne's School (1951) and Riverdale Separate School (1931, 1941), according to the Henderson's Data. It now appears to be a residence.

5 The church was recorded at 9704 - 92 Street for the 1961 and 1971 data.

6 In the 1961 data, the residence was recorded as sharing the building with the Synod Office and the Alberta Government Telephones Head Office.

7 In 1971, the City of Edmonton was awarded a Vincent Massey Award for excellence in the urban environment regarding the planning of Mayfair Park.

8 The pavilion and park were dedicated to Emily Murphy, a prominent Edmontonian, who fought to have the property rights of women established by law.

9 Other bridges have also been added outside the immediate study area, within the city both upstream and down. These bridges, the Quesnell and Capilano, have alleviated to some extent stress on traffic within the study area.

10 The report maintains that the dams' effect on flood peaks depend on many factors too difficult to qualify. The maximum combined effect would be a 4 ft (1.22 m) reduction in river stage at Edmonton on a flood with a recurrance interval of 50 years (Alberta Department of the Environment: 1974, p. 19).

11 A similar problem was also encountered earlier by the wagon teams that had hauled lumber from the Hudson's Bay Company Sawmill located there over 100 years ago. The mill has long since

been demolished.

12 The Bland-Spence Sales Report had been preceded by the Todd Report (1907) and the 1933 Zoning Bylaw.

13 From observation, it is evident that many buildings intrude within the development limit recommended by the Top-of-the-Bank Policy. This is a reflection of policy inconsistency as outlined in the River Valley Study (1974).

14 Edmonton Power has long range plans to phase out the Rossdale Generating Station beginning in 1976. A transmission sub-station is planned to replace the current facilities (City of Edmonton: 1974, pp. 46-47).

Chapter VII

Conclusion

The present day settlement pattern of the North Saskatchewan River Valley study area is a reflection of many interacting factors that have accumulated throughout the decades. The net tendency for all the factors--natural, political, economic, technological and social has been to promote a steady withdrawal of many activities from the valley.

The foremost factor has been the political one--a desire on the part of the city council and of the residents of Edmonton to reserve the river valley for public recreational purposes. This desire manifested itself prior to 1914 and can be found repeatedly throughout city policies regarding the valley. The conflict ensuing from public versus private and public versus public interests has tended to work against these policies. For example, the effectiveness of group action to protect the river flat communities may modify current plans for a Capital City Recreation Park in the valley.

Secondly, there has been a tendency for economic factors to assist in the withdrawal of activity from the valley. The economic aspect is, however, closely associated with the political in that city council decisions were often responsible for shifts in the location of economic activity. Many industries in the study area failed to recover from the tax burden accumulated during the years of World War One. The city was, thus, able to purchase property in

arrears and consequently acquired large tracts within the valley to be later developed as parks and recreation areas. The demise of industrial activity within the valley was hastened also by city-created industrial zones to the north. Incoming industry was offered attractive incentives to locate in these zones. In the light of the disadvantages produced by the above actions and the active discouragement of industry locating in the valley, it is not surprising that few valley industries survived beyond the 1920's.

Technological factors have also played a major role in the changing settlement pattern of the study area. The most notable of course, was the bridging of the valley in 1899 by the Low Level Bridge. This link and its successors markedly increased the importance of transportation within the study area, but at the same time by-passed many activities that had relied on through-valley traffic, especially rail traffic.

The development of valley roads and bridge approachways has fragmented the study area and resulted in much land loss in residential and recreational uses. The recent pressures for further express roadways through the study area threatens to complicate the problem.

Social factors have played a minor role in the settlement pattern of the study area until recently. The community leagues of Rossdale, Riverdale, Cloverdale-Lavigne and Walterdale have been active in the fight for preservation of the residential areas in the face of city and provincial policies. It appears that Riverdale, alone, can be said to have been successful.

The activities of the community leagues, however, in

combination with the physical 'confinement' of the river flat communities have afforded these residential areas a considerable measure of social cohesiveness. This characteristic has, no doubt, tended to preserve the residential nature of the study area longer than would otherwise have been the case.

Lastly, natural factors have been responsible for both rapid and gradual change within the study area. The dramatic consequences of the 1899 and 1915 floods have been unparalleled since, however, scores of less dramatic natural events have produced important consequences. Bank instability and damage to property caused by coal mine subsidence are two of the most important. These latter facts and the danger of flooding, in part, led city council to restrict development in the river valley. In the least, it would be injudicious to build high-rise towers on the unstable foundations that Riverdale would provide, or invest in a river bank activity knowing the flooding potential of the North Saskatchewan.

The interaction of the above five factors, thus have been responsible for the changing settlement pattern of the study area. The most important trends can be outlined here in a brief summary.

Industrial activity in the study area was relatively short-lived, coming to a dramatic end following World War One. At its peak, however, the industrial activity included sawmilling, brick making, tanning, brewing and boat and carriage building. Coal and gold mining also flourished.

Residential activity fluctuated with population trends. Over the years, the number of houses increased with the population, with the exception of Walterdale which deteriorated rapidly during the

1960's and 1970's. The most notable surge in residential development took place in the immediate post-World War Two years. This surge was followed by housing losses during the last decade with vacancy rates characteristically higher than in the earlier period.

The majority of housing units in the study area were built as one or two-storey frame or stucco single family units. The more well-to-do homes were built of brick. The post-World War Two years saw a growing number of multiple dwellings, not only in the conversion of single-family units as had occurred much earlier, but in walk-up and high-rise apartments. Rossdale has been the latter's area of concentration. The increase in population during the last decade is likely composed of those individuals living in these structures.

Institutional and commercial activities were at their peak in the years prior to and immediately following World War Two. The general grocery store, however, lost its market to the large post-war supermarkets. All but two of the eight schools closed as enrolment declined and in a similar fashion many churches closed due to declining attendance.

Transportation in the study area made rapid strides in bridge and road construction in the post World War Two years. These facilities were, however, not oriented to local needs but rather to ease congestion for cross-river traffic originating outside the study area. Water transportation is now of a recreational nature only and even that is very limited. However, prior to the construction of the Low Level Bridge and the arrival of the railway, water transport was of major importance in connecting Edmonton to the outside world. York boats, canoes, steamboats and barges were all to be found on the

river during their respective periods.

By far the most dominating feature of the study area today is the area devoted to parks and recreation facilities. The development both by public and private means has been discussed at length. It is sufficient to stress that it has been city policy to reserve the North Saskatchewan River Valley and Ravine System as a recreational area since before 1914. Despite conflict arising from the residential sector--conflict over the building of roads in the valley and the acquisition of park land by private groups, city policy has continued to emphasize recreation use.

One has only to compare the settlement pattern of 1915 with that of 1975 to note the striking differences in the amount of open space. The recreational function of the study area has steadily encroached on the residential, commercial, institutional and industrial functions until, today, when the study area has two possible futures--that planned out by supporters of the Capital City Recreation Park or a modification won by action of the local community leagues. The inevitable situation, however, is that the recreational area will increase at the expense of the river flat communities of Rossdale, Riverdale, and Cloverdale-Lavigne. Walterdale is now history. The current battle between private and public interests will decide the remaining communities' fates.

The intriguing question remains--what would the study area have looked like if there had been no action taken by city council to preserve the valley and ravines as a recreational area? Certainly, this is difficult to answer as many seemingly unrelated decisions, especially on economic matters, did have an effect on development in

the study area. One must also consider the economic burden imposed by tax arrears accumulated by study area industries during World War One, competition created by the industrial zones just to the north, the by-passing effect created by the numerous bridges, impingement on and fragmentation of recreation land by roadways, the loss incurred by the 1915 flood and many other factors.

A suitable solution to the above problems of river valley development will be supposed. If the city had granted relief from the World War One tax burden and had furthermore encouraged industries suitable for a valley existence to re-establish themselves after the 1915 flood, certainly the study area would look very different today. It is envisaged that Walterdale, Cloverdale, Riverdale and Victoria Park Flats would have had a large number of industries such as brick yards, sawmills and others requiring a large volume of water. This is not to say the number of these activities would have been large as restrictions on growth would have imposed themselves in the guise of dwindling natural resources and the limited volume of water in the North Saskatchewan River. One also might suppose here, the existence of a rail link to the up-land.

Most certainly residential development would have been of a far greater extent than it is today. As well as the present communities, other areas such as Walterdale and Mayfair Park Flats would no doubt have been built upon. Early base maps show Mayfair Park Flats planned into blocks and drives so this latter supposition, at least, has some factual basis. The residential areas would have been served with their share of commercial and institutional activities.

It is envisaged that the road network would be very much the

same as at present with a greater emphasis on local needs. Water transportation might have been preserved to service the river bank industries. It is unlikely, however, that this would have been developed on a large scale.

The least important function would have been that of recreation. No large areas of parkland would probably exist such as they do today. All that might exist would be small community parks and those ravines and slopes untouched by industrial activity and road construction. The valley would not have been an attractive recreational outlet for the residents of Edmonton.

A comparison of river valley development in other Canadian cities might prove productive both for historical geographers and urban planners. Many problems are inherent in such studies as has been the case with this study. For example, the accurate determination of population figures remains a statistical challenge. In addition, certain cartographic problems are bound to arise in the mapping of settlement changes. These and many others might be solved in a future analysis.

It is hoped that this study will have value for those who plan for change in the North Saskatchewan River Valley and Ravines of Edmonton. A knowledge of past changes and the reasons for their occurrance may serve as an illuminating base for future planners. It is also hoped that the study will prove useful to other historical geographers who wish to study Edmonton.

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Historical land use data was extracted from Henderson's Street Directory for the years 1895, 1911, 1921, 1931, 1941, 1951, 1961 and 1971. Lowe's Edmonton and District Street Directory for 1899 was also used. Data regarding developments in the study area was obtained from the Edmonton Bulletin and Edmonton Journal from the years 1880 to 1976.[1] The newspaper research was supplemented by perusal of the City of Edmonton Archives' clipping files and general files. A number of historical maps were also consulted both in the City of Edmonton Archives and the University of Alberta Map Collection. Foremost among these maps were those contained in the Chas. E. Goad Land Use and Fire Insurance Atlases of which only two volumes (1910 and 1913) were available. Population statistics were recorded from Day (1974) and the City of Edmonton Census data.

Secondary Sources

The primary sources of information used in this study were often incomplete as in the case of the newspaper sources or inaccurate as in the case of the Henderson's Street Directories. To overcome this difficulty secondary sources were consulted as to the natural, political, economic, technological and social factors affecting settlement changes.

The physical characteristics of the North Saskatchewan River Valley were ascertained from field observation and written material. Most valuable were the Alberta Department of the Environment Recreation

Task Force, Capital City Recreation Park, Inventory and Analysis Report (1975a) and the North Saskatchewan River-Edmonton Flood Plain Study (1974) and McPherson and Kathol (1975).

Political factors affecting change were largely obtained from Dale (1969) and the City of Edmonton River Valley Study (1974). Wonders (1959a,b), Lai (1967), MacGregor (1967) and Hamilton (1971) were consulted regarding economic factors. These sources and others such as Ockley (1932), MacDonald (1959) and Jones (1962) aided in the analysis of the above factors plus social and technological factors.

Other articles and books regarding the history of Edmonton were useful in the data they presented on the river valley, such as Carter (1923), Edmonds (n.d.) and Horan (1945?). Other useful historical information was presented by Cameron (1900), Oliver (1930), Edmunds (1949), Wonders (1959a,b), Roe (1964), Peal (1968) and Day (1974).

1 The Edmonton Bulletin ceased publication in 1949.

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Appendix 1

THE CITY OF EDMONTON
POPULATION STATISTICS

YEAR		POPULATION
1878		148
1881		263
1887	(Est.)	350
1892		700
1895		1,165
1897		1,638
1899		2,212
1901		2,626
1903		6,995
1904		8,350
1906		14,088
1908		18,500
1909	(Est.)	23,000
1911		24,900
1912		53,611
1913		67,243
1914		72,516
1915		59,339
1916		53,846
1917	(Est.)	51,000
1918	(Est.)	53,000
1919	(Est.)	60,000
1920		61,045
1921		58,821
1922	(Est.)	60,000
1923	(Est.)	60,000
1924		63,160
1925		65,378
1926		65,163
1927		67,083
1928		69,744
1929		74,298
1930		77,557
1931		79,059
1932		78,387
1933		79,231
1934		79,773
1935		82,634
1936		85,470
1937		87,034
1938		88,887
1939		90,419
1940		91,723
1941		93,924
1942		96,725
1943		105,536
1944		108,416
1945		111,745
1946		114,976
1947		118,541
1948		126,609
1949		137,469
1950		148,861
1951		158,912
1952		169,196
1953		183,411
1954		197,836
1955		209,353
1956		223,549
1957		238,353
1958		252,131
1959		260,733
1960		269,314
1961		276,018
1962		294,967
1963		303,756
1964		311,804
1964	Fall	357,696
1965	Fall	371,265
1966	Fall	381,230
1967	Fall	393,563
1968	Fall	410,105
1969	Fall	422,418
1970	Fall	429,750
1971	Fall	436,264
1972	Fall	441,530
1973	Fall	442,365
1974	Spring	445,691
1975	Spring	451,635

(Source: City of Edmonton Census Data: 1975)

Appendix 2

STUDY AREA
POPULATION STATISTICS

	Cloverdale-Lavigne	Rossdale	Riverdale	Walterdale	TOTAL
1899	30	135	41	55	261
1914	660	915	1,420	350	3,345
1915	500	765	1,065	220	2,550
1916	390	615	880	185	2,070
1919	340	695	1,030	190	2,255
1922	605	860	1,420	295	3,180
1925	580	840	1,445	300	3,105
1930	765	905	1,495	280	3,445
1937	1,418	1,150	1,328	290	4,186
1945	1,657	1,364	1,617	310	4,948
1950	1,678	2,266	1,588	254	5,786
1955	1,854	1,300	1,579	249	4,982
1960	1,797	1,531	1,554	233	5,115
1965	1,482	1,477	1,372	170	4,501
1970	1,200	1,108	1,468	70	3,846
1975	902	2,307	1,747	0	4,956

(Sources: Day 1974 and City of Edmonton Census Data)

Appendix 3

STUDY AREA
LAND USE STATISTICS

RESIDENTIAL LAND USES	1911	1921	1931	1941	1951	1961	1971
Cloverdale-Lavigne	41 (2)	244 (39)	275 (16)	331 (6)	462 (4)	428 (4)	358 (10)
Rossdale	251 (18)	344 (25)	462 (13)	507 (3)	574 (2)	522 (7)	379 (16)
Riverdale	181 (37)	285 (30)	384 (20)	404 (4)	459 (7)	468 (8)	441 (15)
Walterdale	41 (4)	58 (5)	56 (1)	60 (2)	58 (2)	51 (2)	13
Groat Flats	---	---	6	6	9	---	---
Vacancies (')							

INDUSTRIAL LAND USES	1911	1921	1931	1941	1951	1961	1971
Cloverdale-Lavigne	6	7	1	1	1	2	2
Rossdale	9	9	7	7	5	8	2
Riverdale	2	2	2	2	1	1	3
Walterdale	6	-	-	-	-	-	-
Groat Flats	-	-	-	-	-	-	-

COMMERCIAL LAND USES	1911	1921	1931	1941	1951	1961	1971
Cloverdale-Lavigne	3	5	8	12	10	10	6
Rossdale	6	12	13	10	12	9	8
Riverdale	8	4	3	4	4	7	6
Walterdale	1	1	2	2	1	1	1
Groat Flats	-	-	1	1	-	-	-

STUDY AREA
LAND USE STATISTICS

INSTITUTIONAL LAND USES	1911	1921	1931	1941	1951	1961	1971
Cloverdale-Lavigne	-	5	4	4	3	4	3
Rossdale	3	9	12	9	13	16	13
Riverdale	3	4	4	4	5	4	4
Walterdale	1	1	3	2	2	-	-
Groat Flats	-	-	-	-	-	-	-

(Source: Henderson's City of Edmonton Street Directories)

Appendix 4

Capital City Recreation Park

Capital City Recreation Park is a co-operative project between the City of Edmonton and the Province of Alberta. The concept was accepted by both governments in December 1974. Work is now underway and scheduled for completion in the spring of 1978.

The park begins at the city's downtown river valley area (approximately 1,000 ft/304.8 m west of the High Level Bridge) and follows the valley for about 10 mi (16.1 km) downstream. The park features hiking and bicycle trails, major parks, picnic areas, lagoons, pedestrian bridges and many other facilities for both summer and winter actvities.

The park is designed for the use of all citizens including the handicapped. The park will at the same time add to the beauty of the North Saskatchewan River Valley.